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THESIS

An Inquiry into the Theory and  
Current Practice of Accounting for Depletion  
of Wasting Assets

by

*Just edley*  
R. W. Gray  
(B.S. in B.A. Boston University 1941)

submitted in partial fulfillment of  
the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION





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## Chapter I

### INTRODUCTION

The theory of depletion is fairly simple and easily understood. As an illustration, assume a housewife purchases a box containing forty-eight sugar cubes. At the end of the week after thirty-six of the cubes had been consumed, the box is said to be three-quarters depleted. The practical application of this theory, however, presents difficulties. Unlike the box of forty-eight sugar cubes, the total quantity of coal in a mine, or the total number of barrels of oil in an oil pool is unknown, since they lie under the surface of the ground. Thus, since the total amount of the underground resource is not known, the problem arises as to how far depleted is a coal resource when, say, thirty-six thousand tons of coal have been extracted or how far depleted is an oil pool when thirty-six thousand barrels of oil have been removed. The recognition of depletion is not universal in current practice. In some cases, the quantity of the underground resource can be estimated with some accuracy and depletion can be computed with the least amount of error. If the box of sugar tablets were dumped in a glass jar, a person might estimate their number to be, say, fifty. This estimate, while not exact, is accurate enough to form the basis of calculating depletion. In other cases, the estimate of the quantity of the resource cannot be made with any accuracy. A person could hardly be expected to guess the number of sugar





cubes in an opaque glass jar. It might be full, or then again, it might be empty. Thus, the inability to form an estimate of the total quantity of the resource causes some firms to ignore depletion entirely.

It is the absence of universal recognition of depletion in practice that attracts attention to this subject. Interest is further stimulated when the sketchy treatment of depletion in some accounting texts fails to reconcile the variance between the theory of depletion and the current practices of accounting for depletion.

Accounting for depletion is significant because it is concerned with our natural resource industries which are basic in our economy. This subject is worthy of an inquiry because of the problems it presents to certain of the resource industries.

The purpose of this inquiry is to determine how the concept of depletion of natural resources has developed in the United States and to determine the current practices of accounting for depletion in the major natural resource industries. These industries include non-ferrous metal mining, coal mining, iron ore mining, petroleum production and timber production.

In developing this inquiry, accounting texts and articles in accounting periodicals will be used to present



the theory phase. The study and analysis of annual reports to the stockholders of specific firms and of annual statements and registration statements filed with the Securities and Exchange Commission will be used to present the practice phase. In presenting the past and current practices of accounting for depletion, case studies of specific firms will be made, based on facts published in reports previously mentioned or in cases brought before the Board of Tax Appeals, the Tax Court, and the Securities and Exchange Commission. In presenting the case studies, emphasis will be placed on the basis of valuing the natural resource and the method used to compute depletion thereon.



## Chapter II

### NATURE OF DEPLETION

#### Depletion Defined

Depletion should be considered from two viewpoints-- physical depletion and "accounting" depletion. Most of the definitions given in accounting texts and in periodicals define depletion in the physical sense; that is, the gradual exhaustion of a resource through exploitation. Physical depletion, sometimes referred to as "mineral depletion," is defined as the process by which an irreplaceable stock of metal is exhausted as the result of mining operations. (1) George O. May refers to depletion as meaning the exhaustion of natural resources. (2) Depletion in the accounting sense means the recovery of the cost of a natural resource asset by a charge against income. In his Advanced Accounting, Paton makes a distinction between physical depletion and "valuation depletion."

"From a value standpoint, depletion is the expiration of the cost (or in some cases the estimated value) of wasting resources as a result of the process of production." (3)

The reconciliation between these two viewpoints is that "accounting" depletion is measured by the physical depletion.

1. Short, Frank G., Depletion: The Pivotal Problem of the Non-ferrous Mining Industry, Journal of Accountancy, Volume 72, page 229.
2. May, G.O. - Financial Accounting, page 150.
3. Paton - Advanced Accounting, page 384.







It is not the exhaustion of the resource that is important from the accounting viewpoint, but rather the recovery of cost measured by that exhaustion.

### Depletion and Depreciation

At first, depletion was considered a different kind of depreciation as evidenced by the Dickinson definition. (1) Depreciation, also, has a similar conflict between the physical and the accounting concept. (2) However, there is no relationship between depletion and depreciation since in the case of the latter, physical wear and tear does not measure directly the charge to income. (3) The main difference between depletion and depreciation lies in the nature of the assets. Depreciation is concerned with assets that are capable of being replaced when they are worn out; depletion, on the other hand, is concerned with assets that cannot be replaced once they have been exhausted. Passage of time as well as usage causes a recognition of depreciation. Passage of time

1. Dickinson, A.L. - Accounting Practice and Procedure, page 172, "There is another class of depreciation consisting of the actual consumption of subsoil products which reduce the original property value."
2. See Cox - CPA Problems and Solutions, 1914, page 282: "Define depreciation. Answer: Depreciation represents the shrinkage in value of assets through wear, tear, decay and other causes."
3. Paton - Advanced Accounting, page 256: "Depreciation should not be in whole or in part responsible for economic extinguishment."



has no effect on depletion; depletion results only from the extraction of the asset. May states that: (1)

" . . . depletion differs from depreciation in that it relates to property which has not been created by an expenditure of capital."

Another aspect of the difference between depletion and depreciation is that errors in depreciation rates are corrected when the asset is replaced; whereas errors in depletion rates are not corrected since there can be no replacement of the asset. Johnson summarizes the differences between depletion and depreciation in tabular form as follows: (2)

Depletion	Depreciation
1. Depletion measures the exhaustion of the investment in a natural resource.	1. Depreciation measures the exhaustion of the investment in plant and equipment.
2. Depletion occurs only when and if extractive operations are carried on.	2. Depreciation occurs whether or not operations are carried on.
3. An asset subject to depletion is one which is directly consumed.	3. An asset subject to depreciation is one which is indirectly consumed, a consumption of service value . . .
4. An asset subject to depletion becomes quantitatively less as it is mined or cut.	4. An asset subject to depreciation does not necessarily become smaller in size as it loses value . . .

1. May.- Financial Accounting, page 150.
2. Johnson - Intermediate Accounting, Rinehart Company (1947) page 304.





5. An asset subject to depletion cannot usually be replaced . . .

5. An asset subject to depreciation may usually be replaced without difficulty.

6. An asset which has been extracted is the stock in trade of the enterprise and is intended for sale.

6. An asset subject to depreciation is not intended for sale . . .

### Nature of Wasting Assets

The main difference between depreciation and depletion seems to lie in the nature of the assets. A wasting asset, sometimes called a natural resource asset, refers in general to mineral deposits, oil and gas wells, and timber resources and "under certain circumstances, specialized farm land, orchards, groves, plantations, etc. may be classified as wasting assets." (1)

The wasting asset is converted physically into the finished good, whereas the depreciable asset renders a service to production throughout its life and is not physically converted into the finished good. In the 1948 edition of the Accountants' Handbook, this idea is stated as follows:

"It is of interest to note the relationship between a wasting asset such as a coal deposit and a stock of raw material. In each case the asset is physically exhausted or consumed unit by unit as operations proceed. In contrast is the situation in the case of a unit of equipment. Here the unit is used over a period of years to give off a series of similar services." (2)

1. Accountants' Handbook (1948), page 617.
2. Ibid., page 618.





Wasting assets are diminished in volume, the depreciable asset, in overall usefulness. The wasting asset is one which came into existence without effort on man's part, whereas a depreciable asset only comes into existence through man's effort. This lack of effort on man's part is probably one reason why depletion was not recognized until comparatively recently. It was believed that since the resource was created by nature, there was no cost to be attached to the resource and thus nothing to deplete.

The wasting asset is physically incapable of replacement, whereas the depreciable asset can be replaced at will. There are some assets which can be considered as wasting assets or as non-wasting assets, depending upon the particular situation. Timber, for example, can be considered as a wasting asset if the stand is cut with no provision for replacement, or it may be considered as a fixed asset if such stands of timber are harvested on a crop basis by selective cutting.

Land has always been considered the most fixed of all assets. Yet, land is possible of being depleted in the sense that the soil loses its fertility, due to agricultural exploitation or in other situations where the soil has been completely eroded over a period of time. However, fertility can be artificially replaced to some extent by fertilizers and erosion can be reduced or minimized by human efforts.



Mineral, petroleum and timber resources will be considered wasting assets for the purpose of this inquiry since they are more significant from an economic point of view than agricultural land and game and fish preserves.

#### Valuation of a Wasting Asset

The valuation of the natural resource is the numerator of the fraction giving the depletion rate. The question of what is the value of the resource that we wish to deplete should be a simple one to answer. But it is not. Even the "cost" basis is uncertain depending on what measures cost--money, common stock, bonds, or some other medium.

The bases for valuation of natural resource assets are:

- a. cost
- b. market value
- c. discovery value
- d. present value
- e. predecessor's basis

In theory the cost basis of valuation is most generally adopted; in practice it is not always easy to determine the proper cost figure. (1) If the cost is measured in terms of money, there still remains the decision of whether to include or exclude development costs. Then again, a mine and mine equipment may be purchased for a lump sum. If the

1. Fernald, Peloubet and Norton - Accounting for Non-ferrous Metal Mining Properties and Their Depletion, Journal of Accountancy, Volume 68, page 105 (August 1939).

It is the duty of every citizen to support the government in its efforts to maintain the peace and order of the country. The government has the right to take such measures as it deems necessary for the preservation of the public safety and the good of the community.

The government is the only authority that has the power to enforce the laws of the land. It is the duty of every citizen to obey the laws of the government and to support the government in its efforts to maintain the peace and order of the country. The government has the right to take such measures as it deems necessary for the preservation of the public safety and the good of the community.



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value of the equipment is nominal, the entire purchase price may be applied to the mine. Usually, however, the estimated value of the equipment will be set up in a separate account and the balance of the purchase price will represent the cost of the mineral deposit. (1) For example, on January 11, 1949, the East Camp Consolidated Mine of New Mexico was put up for sale at public auction. (2) The items for sale included eight individual lode mining claims, equipment and machinery (valued at \$46,000) and buildings (no value given). The sale could be made in bulk, in units, or in piecemeal lots. If this sale were made in a lump sum, a value would have to be assigned to the buildings. The lump sum price paid minus the values assigned to the fixed assets would give the "cost" of the mining properties. If this "cost" were to be further apportioned among the eight claims, some arbitrary basis would have to be employed.

"The laws of most mining states permit almost any valuation to be placed on a mining property . . . Under these circumstances, it is clear that there is no general or necessary relationship between capital stock issued for a property and its estimated or actual value." (3)

Thus, the actual cost of a resource purchased for something

1. Ibid., page 106 (adapted).
2. This information was extracted from a folder distributed by Ralph Rosen Associates, Auctioneers, Dallas, Texas.
3. Peloubet, M.E. - Natural Resource Assets, Harvard Business Review, Volume 16, page 78.





other than cash is often difficult to determine. If the resource is acquired by an issue of par value common stock, there are three possible treatments.

- a. the amount of the par value of the stock will be charged to the wasting asset account; (1)
- b. the wasting asset account will be charged with an amount representing a valuation placed on the resource, common stock credited with par value and the excess credited to paid-in surplus;
- c. or charging the wasting asset account with the value placed on the resource, crediting common stock with par value and charging the deficiency to discount on common stock.

To illustrate the foregoing, assume the following situations:

- a. 1000 shares of common stock par value \$100 is issued in payment for a resource, no valuation being placed on that resource. The entry would be:

Wasting Asset	\$100,000	
Common Stock		\$100,000

- b. 1000 shares of common stock par value \$100 is issued in payment for a resource, the value placed on the resource being \$150,000. The entry would be:

Wasting Asset	\$150,000	
Common Stock		\$100,000
Paid-in Surplus		50,000

- c. 1000 shares of common stock, par value \$100 is issued in payment for a resource, the value placed on the resources being \$75,000. The entry would be:

1. See infra page 60, Emporia Gold Mines, Inc.

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Wasting Asset	\$75,000	
Discount on Com-		
mon Stock	25,000	
Common Stock		\$100,000

If the resource is acquired by an issue of no par stock, with a stated value, the treatment would be same as with par value stock. If there is no stated value, the wasting asset account would be charged and the common stock account credited with some arbitrary amount.

If bonds are used in the purchase of the resource, the bonds are generally considered the equivalent of cash. (1)

Occurring in sufficient instances to form an accounting precedent, the predecessor's basis for the resource is used by the person acquiring the property, especially in a reorganization. This method is used as a convenience for income tax purposes and as a device to avoid confusion in the minds of the stockholders. (2)

In the case of a partnership, the partner contributing the resource should value it at the fair market value as of the organization date of the partnership in order to protect his equity.

Under the provisions of the Federal Income Tax Law, some resources are valued at the fair market value as of March 1, 1913. For those resources not allowed to use per -

1. Fernald, Peloubet, and Norton - Accounting for Non-ferrous Metal Mining Properties and Their Depletion, Journal of Accountancy, Volume 68, page 107 (August 1939).
2. Ibid., page 107.





centage depletion for federal income tax purposes, it is possible to value the resource at a discovery value--the fair market value of the resource at the date of discovery or within a period of thirty days thereafter. (1) To allow another basis for depletion would mean that the discovery of a resource would result in taxable income almost to its entire value (i.e. annual production and sales).

In the article, National Resource Assets, (2) Peloubet stated that for any correct valuation of a resource, we need to know:

1. the number of salable or recoverable units
2. the unit price to be received over the life of the resource
3. the cost of production over the life of the resource
4. rate of production
5. the rate of interest for return on capital and for reinvestment

The difficulty inherent in the above is that each item is unknown, since all factors are dependent upon data which will be ascertainable in the future. Peloubet points out that some mines have been producing since the Phoenician Age, thus tending to negate any accurate estimate of recoverable units or of the life of a resource. Further, when ores occur in vein systems, it is practically impossible to expend money to delimit the vein accurately. Changes in consumer

1. Prentice Hall Tax Course - 1948, page 2103
2. Harvard Business Review, Volume 16, page 77.





style and tastes closed the jet mines long before the recoverable units were extracted. The unit price and the cost of production over the life of the property are certainly unpredictable. Who is to know what the price of, say, copper will be for the period ending 1970 or 1980, or the price of labor during a like period? The rate of production would depend upon the prices received and the costs incurred. The rate of interest in the future also may not be predetermined.

Peloubet continues the discussion that the ownership of any natural resource has only one true financial value, the present worth of profits to be realized therefrom. Other methods of valuation are of little or no use in determining the worth of a resource. (1)

The valuation given to a mine by an engineer is not a sales price of a definite and incontrovertible sum. In every purchase of a mine, there is a matter of judgment and opinion of the future costs of production and finally a judgment of the opinion of the engineer. (2) Each mining property is to some extent unique. It is not the same as two houses or two automobiles which can be compared and thus have a market value determinable within certain limits.

A method of arriving at the present value of a resource or the value as of March 1, 1913, called the Hoskold

1. Ibid., page 77.

2. Roberts - State Taxation of Metallic Deposits  
Harvard University Press (1944).



formula, is a complex one. This method is criticized by

May as follows:

"There was a curious lack of perspective and proportion in the procedure by which the valuation engineers in, or as of 1913 reached their conclusions. In general, the method of valuation adopted was a strange compound of highly speculative assumptions and meticulous mathematical computations.

"First, they made assumptions as to future prices and production over long periods of years (fortunately in ignorance of the events that would mark those years); next, they expressed their estimates in the form of a uniform net annual yield; finally, they applied to this assumed yield discount tables extended to many decimals. The final touch of incongruity was afforded by the introduction into the discount process of a questionable actuarial refinement which has raised the Hoskold formula to an amazing prestige and immortalized its author in the tax world. But as the courts have pointed out main responsibility for the unrealities rests upon the legislature. If laws call for valuation--valuation must be made as best they can even though that best is manifestly and inevitably imperfect." (1)

Questions also arise in regard to capitalizing development costs. Costs of development often represent a significant part of total costs of the resource, especially in mineral deposits. The cost of stripping off the overburden, of drilling to find and define the deposit, of sinking shafts to remove the deposit are classified as development costs. Any income received from the scrap of development, say,

1. Financial Accounting, page 151.

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CHICAGO, ILL., MAY 1, 1910

TO THE EDITOR:—I have the honor to acknowledge the receipt of your issue of April 26, 1910, and to thank you for the same. I am sorry that I cannot give you a more complete answer to your inquiry, but I am sure that the information I am able to give you will be of some value to you. I am, Sir, very respectfully,  
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the sale of wood from overstripping should be deducted from the total expense in order to show the development cost at a net future.

Paton describes the two alternative treatments of development cost--either added to the total of the cost of the resource or carried as a deferred charge. (1) However, where development charges occur during the life of the enterprise, whether or not to capitalize these costs depends on whether or not they are applicable to future revenues. If development expense should be matched with future revenue, it should be capitalized by either adding it to the value of the resource or setting it up separately as a deferred charge. If the costs of development are not allocatable with future revenue, then they should be charged against current income. Carrying charges in timber enterprises fall in this category. (2)

"Development thus represents the amortization of funds expended to explore, develop and make available for extraction the content of the property. (3)

"The general practice today is to capitalize development expense until production is underway. Carrying charges are similarly treated. Where possible, these are segregated as to particular areas or projects." (4)

1. Advanced Accounting, page 382.
2. See infra page 139; Warner Mountains Lumber Company
3. Fernald, Peloubet and Norton - Accounting for Non-ferrous Mining Properties and Their Depletion, Journal of Accountancy, page 107 (August 1939).
4. Contemporary Accounting, American Institute of Accountants, Chapter 7, page 14 (1945).



In summary, let it be said that:

" . . . whatever basis is used in valuation has largely a historical meaning with little or no significance to a present investment value." (1)

There are enough cases in which the resource is presented on the balance sheet at an appraised value as of a certain date to form a precedent and to take this as an accepted accounting method. (2) In a majority of cases the proximate cause of the appraisal has been the federal income tax law.

One more aspect which one might relate to valuation is the influence of local property taxation. In most of the resource areas, the states tax the resource on an income basis rather than on an ad valorem basis. (3) Some states, notably those with copper and iron deposits, tend to use the ad valorem basis. In general, it might be summarized that where the resource is difficult to appraise, property taxation is applied on a different basis than a valuation basis. Thus, it may be concluded that in the case of most resources, the influence of state property taxation has little effect on the valuation of the resource. One writer has stated the difficulty of applying the ad valorem basis, particularly to mines, an adaptation of which follows. (4) Mines are different

1. Fernald, Peloubet and Norton - Accounting for the Depletion of Non-ferrous Metal Mining, Properties and Their Depletion, Journal of Accountancy, Volume 68, page 107 (August 1939).
2. Ibid., page 107.
3. See Appendix, page 152
4. Roberts, W., State Taxation of Metallic Deposits, pages 8-12.

# THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

IN THE YEAR 1649

BY JOHN BURNET

LONDON

Printed by J. Streater, at the Sign of the Gun, in St. Dunstons Church-yard, near the North Gate of London. 1689.

THE HISTORY OF THE REIGN OF KING CHARLES THE FIRST, IN THE YEAR 1649, BY JOHN BURNET, A BISHOP OF THE CHURCH OF ENGLAND. LONDON, Printed by J. Streater, at the Sign of the Gun, in St. Dunstons Church-yard, near the North Gate of London. 1689.

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from other types of property because of

1. the technical difficulty of appraisal
2. limitation of the life of the deposit
3. the unique position of natural resource deposits in the system of political economy.

The disappearance of taxable value at the end of the life of the mine is directly related to the extremely high value earlier in its life. The ad valorem system breaks down toward the end of the mining operation. (1) More probable is the influence of a pressure group on the legislature of a mining state in securing a more equitable method of taxation than the ad valorem basis.

When wasting assets are placed on the books at some amount greater than cost, a capital surplus account should be credited. The theoretical arguments that pertain to reflecting appreciation of fixed assets on the accounts apply here. The arguments pro and con of depreciation on appreciation apply as well to depletion on appreciation. The case for depletion on appreciation might even be weaker since no replacement of the asset can be made except in the case of timber.

#### Computation of Depletion Charge

Most accounting texts inform the student that the depletion charge is computed by multiplying the depletion rate times the quantity of production. The depletion rate is in turn computed by dividing the cost or value of the

1. Ibid., page 12.



THE UNIVERSITY OF CHICAGO

IN THE DEPARTMENT OF THE HISTORY OF ARTS  
AND ARCHITECTURE  
A THESIS SUBMITTED TO THE FACULTY  
IN CANDIDACY FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY

BY  
[Name]  
[Title]  
[Institution]  
[City]  
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wasting asset by the estimated number of recoverable units. The cost or other value of the asset may or may not be difficult to determine, but the estimate of the number of recoverable units is, in a majority of instances, very difficult to make. In the case of a stripping operation for mining coal, where such coal is near the surface, it is possible by means of drilling for the content of the resource to be estimated with a reasonable degree of accuracy. In the case of a vein of ore well under the surface, such an estimate cannot be made with any degree of accuracy. (1)

To illustrate the computation of depletion under the cost basis, assume the following set of facts: The A Mining Company purchases the mineral rights in a parcel of land at a cost of \$50,000. Net development costs during the preproduction period amount to \$10,000. The estimated amount of ore to be recovered from this resource, as determined by test drilling is 1,200,000 tons. The first year of production the company mined 60,000 tons of which it sold 50,000 tons at an average price of \$10 per ton.

Cost	\$50,000
Development Cost (net)	<u>10,000</u>
	60,000

$$\frac{\text{Amount to be depleted}}{\text{Estimated Number of Recoverable units}} = \frac{\$60,000}{1,200,000} = .05$$

Rate of Depletion 5¢ per ton

1. Cf. *infra* Sterling Coal Company, page 105 and Big Four Oil and Gas Company, page 121.



First year's production          60,000 tons

Total depletion charge for year  
60,000 units @ .05 = \$3,000

Depletion charged against year's revenue  
50,000 units @ .05 = \$2,500

Depletion charge to be matched against  
future revenue (included in inventory  
valuation)  
10,000 units @ .05 = \$500

Further assume that at the end of five years' time 400,000 units have been extracted. At the end of the fifth year, an additional 200,000 recoverable units have been uncovered at a cost of \$2000. The revised depletion rate would be computed as follows:

Original Cost	\$60,000	
Less Amount of Depletion to Date		
400,000 @ .05	<u>20,000</u>	
	40,000	
Add Additional Development Cost	<u>2,000</u>	
Total to be Depleted		\$42,000
Number of Recoverable Units		
Original Estimate	1,200,000 tons	
Less Amount Mined	<u>400,000</u>	
	800,000	
Add Additional Units	<u>200,000</u>	1,000,000
New Depletion rate	4.2¢ per ton	

According to Paton (1) an alternative treatment is to make the additional development cost and the revised content retroactive to the initial production. From the above facts, the depletion charge would be computed thus:

1. Paton - Advanced Accounting, page 289.





Original Cost	\$60,000
Additional Development Cost	<u>2,000</u>
	62,000

Recoverable Units		
Original	1,200,000	
Additional	<u>200,000</u>	1,400,000

New Rate 4.428¢ per ton

The new rate would have to be applied to the past production of 400,000 tons and a correcting entry made.

Allowance for Depletion	\$2288
Surplus	\$2288

To correct prior depletion charge (assuming prior production has all be sold)

Old rate charged	.05
New rate	<u>.04428</u>
Difference	.00572

$$400,000 \text{ tons} \times \$ .00572 = \$2288$$

Paton further states that if such development costs can be apportioned to certain sections of the resource, another treatment is recognized. (1) This method would have different parts of the resource depleted at different rates. For example, the additional 200,000 tons discovered at a cost of \$2000 would result in separate rate of 1¢ per ton on the new content and would not change the original rate of 5¢ per ton on the original content. This "unit method" of depletion described above is similar to the unit of production method of computing depreciation.

1. Ibid., pages 289-90

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If the value of the wasting asset is stated at some figure other than cost, the method of computing depletion would be the same as for cost. The value as of March 1, 1913, or the value as of the date of discovery are usually greater than cost and are placed on the books as a convenience for income tax purposes. If depletion is taken on an appreciated value, the result is to understate the net income for the period by overstating the depletion charge reflected in the cost of sales. There is sufficient precedent to make this method of depletion an accepted accounting procedure. (1)

The total depletion can only be calculated on the number of units of the resource that can be extracted and sold over a reasonable number of years. If a company owns a resource that will not become exhausted for several hundred years, it is better to adopt some reasonable life, say forty of fifty years, or some reasonable quantity that can be extracted in forty or fifty years. No one invests his money for a possible return two or three hundred years hence. (2)

### The Depletion Unit

The recoverable content of a natural resource and the production therefrom is usually stated in a unit peculiar

1. Contemporary Accounting, American Institute of Accounting Chapter 7, page 14.
2. Depletion of Mineral Deposits - Peloubet - Correspondence Journal of Accountancy, Volume 57, page 152 (1934).





to the industry. The following is a brief list of the units used in various resource industries.

<u>Type of Resource</u>	<u>Unit Used</u>
Coal Mines	ton of coal
Iron Mines	ton of ore
Copper	(copper
Zinc	pounds of (zinc
Lead	(lead
Silver	ounce of refined silver
Gold	ounce of refined gold
Petroleum	barrels of crude oil
Timber	thousand board feet or pulpwood cords

### Ignoring Depletion

In many cases, depletion of the resource is ignored entirely. That is, when there is no knowledge of the number of recoverable units and no possibility of securing a reasonably accurate estimate, there is no basis for computing the rate. In his Financial Accounting, May summarizes the question of recognizing or not recognizing depletion.

"Where as in the case of many coal and iron mines, the mineral bodies are measurable with what for all practical purposes is substantial accuracy, a depletion charge is desirable. This is particularly true if the mineral deposits form the basis of an industrial operation as in the steel industry and, therefore, may be regarded as analogous to inventories. In cases where the mineral content is highly uncertain, the balance of advantage may well lie in making no estimate of depletion (disclosing the fact clearly) rather than in making one that is wholly conjectural." (1)





The theory behind the ignoring of depletion is that it is no function of accounting to guess or to value an estimate when no information exists on which to base that estimate. It is better to ignore the element of depletion and to disclose in the statement the reasons therefor than to value a guess, wild or otherwise, and imply that such a guess in the statement is one of fact or opinion.

"Depletion is such a problem to the accountant because of the geological difficulty of determining the exact quantity and grade of ore." (1)

In 1936 Maurice Peloubet made a survey of natural resource industries and reported that of the companies' statements filed with the Securities and Exchange Commission, approximately half did not show depletion. (2) When the author asked an official of the Tennessee Company at Ducktown, Tennessee, how much depleted was their copper mine, he was told that no one knew, that they set aside ore reserves for two ten-year periods and nothing beyond that. This conversation was the proximate cause of this inquiry, since the textbooks of accounting presented the depletion problem as one of arithmetic only. Such textbook treatment seems to be the ideal and the exception rather than the rule.

1. Fagerburg, D. - Depletion: The Pivotal Problem of Non-ferrous Mine Accounting, Journal of Accountancy, Volume 72, page 229.
2. Natural Resource Assets, Harvard Business Review, Volume 16, page 83.



A more striking example of the impossibility of estimating the ore content is described by Frank G. Short. (1)

"One of our clients operates a gold mine located in the California Mother Lode. Beside the entrance to the office building is a plate which states, among other things, that the date operations commenced was 1850. During that long period, I feel safe in saying that at no time was there more than a year and a half's supply of ore developed to the point where it was capable of even approximate measurement and assay. To have developed further ahead than this would have been most uneconomical for the ground is of such a character that the expense of maintaining the underground workings would have been prohibitive. Consequently, after 88 years of operation, we do not yet know, even approximately, the amount or the value of 'all the ore contained in the property.'"

Rulings of the Securities and Exchange Commission have held that assignment of quantity and value to a deposit where such estimates cannot be made is misleading. (2) The classic example is the case of the La Luz Mining Corporation (3) where the "doodle bug" was employed to estimate "accurately" the tonnage and assay value per ton of a "gold mine."

In order to compute accurately a depletion charge, Peloubet states the following must be known and known definitely: (4)

1. Short, F.G. - Problem of Depletion, Journal of Accountancy, Volume 67, page 230.
2. In the Matter of the Mining and Development Corporation, Securities and Exchange Commission Reports, Volume 1, page 786.
3. Securities and Exchange Commission Reports, Volume 1, page 217.
4. Peloubet - Adapted from Depletion of Mineral Deposits, Journal of Accountancy, Volume 57, page 22.

THE HISTORY OF THE UNITED STATES OF AMERICA

FROM THE FIRST SETTLEMENTS TO THE PRESENT TIME

By J. W. FULTON, Esq., of New York.

THE HISTORY OF THE UNITED STATES OF AMERICA, FROM THE FIRST SETTLEMENTS TO THE PRESENT TIME, is a work of great importance, and one which has long been a desideratum. It is a work which will be read with interest and profit by every American citizen, and by every student of history. It is a work which will be read with interest and profit by every American citizen, and by every student of history. It is a work which will be read with interest and profit by every American citizen, and by every student of history.

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- "a. the quantity of recoverable units of the resource
- b. the method of mining and refining throughout
- c. the selling price over the life of the resource
- d. the costs of extracting reduction and refining over the life of the resource

"Only in rare instances is the amount of depletion of a mining property in any accounting period determinable or capable of reasonably accurate measurement." (1)

The accuracy of the depletion charge depends to a great extent on the accuracy of the estimate of the quantity of recoverable units, the denominator of the fraction which forms the depletion rate. The quantity of recoverable units is incapable of exact measurement because the amount of units that can be removed at a profit depends on future prices and future costs.

Thus, it can be readily seen that a depletion charge represents the best attempt that can be made in the present to predict future events.

### Percentage Depletion

This method of depletion is one of the most controversial subjects in the present federal income tax laws. The position of the Secretary of the Treasury is: (2)

1. Short, F.G. - Problem of Depletion, Journal of Accountancy, Volume 67, page 22.
2. Letter from Secretary of the Treasury Morgenthau to President Roosevelt dated May 29, 1937, quoted in Bulletin #243, Taxes and Depletion, Mining and Metallurgical Society of America (December 1937).



"In addition to these cases of moral frauds, there are three instances in which the law itself permits individuals and corporations to avoid their equitable share of the tax burden. Percentage depletion is the most glaring loophole in our present revenue law. Since 1928 large oil and mining corporations have been entitled to deduct from 5 to  $27\frac{1}{2}$  per cent of their gross income as an allowance for the depletion of their oil wells or mines, and the deduction may be taken even though the cost of the property has been completely recovered. Thus, in 1936, one mining company deducted nearly \$3,000,000 under this provision although it had already completely recovered the cost of its property. The amount of the deduction was a sheer gift from the United States to the taxpayer and its stockholders, and the revenue lost thereby was \$818,000."

It is not the purpose of this inquiry to justify the social or economic ramifications of percentage depletion, but rather to show its application in the depletion of natural resource assets. Percentage depletion is used to compute the depletion allowance for federal income taxes, some state income taxes and some state property taxes. The depletion allowance is computed by taking a certain percentage of gross income of the property during the taxable year. There are maximum and minimum limitations connected with this computation. The allowance so computed may not be less than it would be if computed under the general rule (cost basis) but it may not otherwise exceed 50% of the net income of the taxpayer (computed without allowance for depletion) from the property. (1)

1. Prentice Hall Federal Tax Course 1948, paragraph 2105.

The first of these is the fact that the  
 system of taxation is not uniform  
 and that the burden of taxation is  
 not equally distributed. The second  
 is the fact that the system of  
 taxation is not progressive. The third  
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 is the fact that the system of  
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The fifth of these is the fact that the

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The sixth of these is the fact that the



The rates allowed are as follows:

Oil Wells	27 $\frac{1}{2}$ %
Gas Wells	27 $\frac{1}{2}$ %
Sulphur Mines or Deposits	23%
Metal Mines, Potash Mines	15%
Coal Mines	5%

To illustrate percentage depletion, the following problem is shown in the Prentice Hall Federal Tax Course. (1)

"The X Company purchased oil lands in January 1947 for \$4,500,000 when recoverable reserves were estimated at 45 million barrels. The gross income from the property in 1947 was \$1,200,000, and after taking all deductions except that for depletion, the net income from the property was \$550,000. One and one half million barrels of oil were sold.

"The minimum deduction cannot be less than the general rule (cost basis) of \$150,000.

$$\text{Cost} = \frac{\$4,500,000}{45,000,000 \text{ barrels}} = 10\text{¢ per barrel}$$

$$1,500,000 \text{ barrels of oil sold} \times 10\text{¢} = \$150,000$$

Nor can the allowance exceed the maximum allowance of 50% of the net income from the property (excluding depletion).

$$\text{Net income } 550,000 \times 50\% = \$275,000$$

The actual percentage computation is

$$27\frac{1}{2}\% \times 1,200,000 = \$330,000$$

But since this exceeds the ceiling of 50% of the net income, \$275,000 is the correct depletion charge."

The illustration ends here but to clarify the point in Morgenthau's letter, assume that the oil well continues





in production for several year and takes the following listed depletion charges, as allowed by law.

	<u>Annual Allowance</u>	<u>Total Allowed to Date</u>
1947	\$275,000	\$275,000
1948	600,000	875,000
1949	1,000,000	1,875,000
1950	1,500,000	3,375,000
1951	2,000,000	5,375,000

In 1951 the company had recovered its cost and more through depletion. However, this company may continue to take  $27\frac{1}{2}\%$  of its gross income as a depletion charge as long as the property produces oil. This is the gift that Morgenthau refers to.

Percentage depletion is only used in tax returns to secure the maximum deduction from income and thus minimize the tax liability. Percentage depletion is rarely used in the published statements. (1)

#### Statement Presentation

In the balance sheet the natural resource asset should be valued at cost. However, it is an accepted accounting procedure to value these assets on other bases than cost, since there have been enough cases to establish a precedent. Because there is so much leeway in regard to this valuation, the balance sheet should state definitely the valuation basis.

1. For an exception, see *infra*, Homestake Mining Company, page 75.



If the statement does not inform the reader the basis of such valuation, it should not automatically assume that cost is the basis. There is one exaggerated case in which a \$3,150,000 valuation was reduced to its cost basis of \$1,800. (1) In comparing recent statements with previous statements, one notes a great many improvements, especially the trend towards stating the basis of valuing the assets. In Securities and Exchange Commission Accounting Release #66, it is stated that new property of mining companies having an objectively determinable value should be valued on that basis.

The use of a valuation account, reserve for depletion or allowance for depletion, is used by some companies, while others show the asset at a net figure. The practice of subtracting a composite account called reserve for depreciation, depletion, and amortization from the total of the fixed assets is objectionable. Such a procedure defies analysis and it would seem that its purpose was not to disclose but rather obscure information. The objective of financial statements is one of conveying information, yielding meaning with figures as a book does with words. Where the reserves are shown as one figure, the income statement also reports the charge as one figure under some such account title as depreciation, depletion and amortization.

1. In the matter of Great Dike Gold Mines - Securities and Exchange Commission Reports, Volume 1, page 621.





In its Regulation S-X, the Securities and Exchange Commission under rule 12-07, as amended by Accounting Release #66 (1), favors the use of a reserve for depletion but nothing is stated that it has to be shown separately from other valuation reserves. Footnote #2 to rule 12-07 states that if practicable, reserves shall be shown to correspond with classification of property set forth in the related schedule of property, plant and equipment separating especially depreciation, depletion, amortization and provision for retirement. Similarly, there is nothing in the instructions that a depletion charge and reserve is mandatory. Rule 3-19 (c) requests the registrant to state the policy followed during the period for which profit and loss statements are filed with respect to the provision for the depreciation, depletion and obsolescence of physical properties or reserve created in lieu thereof including the methods and, if practicable, the rates used in computing the annual amounts. The "if practicable" could be interpreted to condone the practice of those companies that do not deplete their resources or who credit depletion directly to the asset.

Development costs are treated as either an addition to the value of the wasting asset or as a deferred charge. In accounting Release #66, the Commission seems to favor the separate showing of unrecovered promotional, exploratory, and development expense.



In the income statement depletion should be included as a cost of production and not as a deduction from net profit. Each ton of ore removed from a mine actually represents a fraction of the cost of the total amount of recoverable ore. For example, if the cost of a mine is \$100,000 and it is estimated that there are 100,000 tons of recoverable ore, each ton of coal mined has a cost of one dollar plus the labor and overhead charges. Since depletion is part of the cost of production, it should be so stated and so included in the inventories. The convenient practice of deducting depletion from a "net income before depletion" should not be condoned.

Peloubet reports in his survey (1) that there is no consistent practice in determining the disposition of the charge for depletion. Of the twenty-four companies which show depletion in some form, thirteen made the charge entirely to income, six entirely to surplus and five divided the charge between income and surplus. He concludes that:

"... little, if any consideration is given by investors to financial deduction for depletion in the published statements of non-ferrous metal mining companies. Investors looked to statistics of ore reserves and operating results as a general guide to the value of their investment."

#### The Influence of the Federal Income Tax Laws on the Policy Depleting Wasting Assets

1. Natural Resource Assets, Harvard Business Review, Volume 16, page 89, (1937).





The Revenue Act of 1913 was the stimulant which was required for a more universal practice of recognizing depletion. Depletion answers the question of how much is income and how much is return of capital. Thus, the revenue acts brought the valuation and depletion of wasting assets to the forefront, since it is manifestly unfair to tax a dividend as income when it represents, in part, a return of capital. (1)

The first provision for a depletion deduction in income tax laws occurred in the Revenue Act of 1913. It provided an allowance for depletion of 5% of the gross value of the output at the mine. (2) It was also the first occasion of a percentage depletion allowance. No mention was made as to how gross value was to be computed.

The Revenue Act of 1916 provided for a reasonable allowance for depletion. The depletion allowance was not to exceed market value of the product mined and sold during the year, but the total thus allowable was not to exceed the original investment or the fair market value as of March 1, 1913, whichever was higher.

The 1918 Law provided for a reasonable allowance for depletion, according to the peculiar conditions in each

1. Peloubet - National Resource Assets, Harvard Business Review, Volume 16, page 95.
2. Prentice Hall Tax Service, page 14416 (1948) and Accountants' Handbook (1924 edition), Ronald Press, page 519.
3. Prentice Hall Tax Service, page 14416, (1948).





case, based upon cost. (1) It also added for the first time "the masterly concept of discovery depletion." (2)

The Revenue Act of 1921 provided that the depletion allowance based on discovery value should not exceed the net income computed without allowance for depletion from the property on which the discovery was made, except where such net income was less than the depletion allowance based on cost or fair market value as of March 1, 1913. (3)

The Revenue Act of 1924 provided that the depletion allowance based on discovery value should be limited to 50% of the net income from the property upon which the discovery was made. (4)

The 1926 Act added the percentage depletion of oil and gas wells. (5)

The 1932 Act required a change in the annual depletion allowance where a new estimate of the number of recoverable units is made in the light of subsequent events. (6)

The 1936 Act required that the basis of depletable property be reduced on account of full depletion previously allowed. Coal, metal and sulphur mines or deposits were put on a percentage basis as follows: coal 5%, metal 15% sulphur 23%.

1. Ibid., page 14416.
2. May - Financial Accounting, page 151.
3. Prentice Hall Tax Service, page 14416.
4. Ibid., page 14416.
5. Ibid., page 14416.
6. Ibid., page 14416.

The first part of the report deals with the general situation of the country and the progress of the work. It is followed by a detailed account of the various projects and the results achieved. The report concludes with a summary of the work done and the prospects for the future.

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There has been no change in the Revenue Acts in regard to depletion since 1936. Furthermore, there are no proposals before the Joint Committee on Internal Revenue Taxation at the present time. (1)

The result of the revenue laws has been to introduce alternate bases for valuation and various methods of computing the depletion charge. Before the advent of the federal income tax law, cost was the only basis. (2) Despite the variety of valuation bases and methods of computing the charge, the recognition of depletion would not be as widespread without the stimulus of the revenue acts. Depletion and depreciation were ignored previous to 1913. The tax benefit of recognizing depletion is one of the main reasons why those "deductions from income" are so widely recognized. The influence of the income tax law is also seen in the valuation of natural resources; the value of March 1, 1913, is the value assigned to the resource on the books of account of many companies.

#### Depletion Requirements of the Securities and Exchange Commission

Regulation S-X governs the form and content of the annual statements filed with the Securities and Exchange Commission. A section of this regulation requires that the certificate must cover the accountant's opinion of the account-

1. See Appendix: Letter from the Joint Committee on Internal Revenue Taxation, page 149.
2. Accountants' Handbook (1924), Ronald Press Company,





ing principles and practices used by the registrant and any changes made in the registrant's accounting principles and practices during the period. Accounting Series Release #4 states: (1)

"In cases where financial statements. . . are prepared in accordance with accounting principles for which there is no substantial authoritative support, such financial statements will be presumed to be misleading despite disclosures contained in the certificate of the accountant or in footnotes to the statement.

"In cases where there is a difference of opinion. . . as to the proper principles of accounting to be followed, disclosure will be accepted in lieu of correction of the financial statements."

However, there is no specific requirement by the Securities and Exchange Commission that depletion has to be recognized. The policy of the Commission is stated in detail by its Chief Accountant. He stated the policy in regard to depletion before a meeting of the Illinois Society of Public Accountants, December 16, 1938.

"A somewhat closely related problem is presented by the question of whether depletion is a necessary deduction in arriving at the income of companies exploiting natural resources. It is clear from statements filed with us that practice is not uniform. The oil industry, coal and iron mining companies and quarrying companies have very generally made such a deduction. In the case of precious metal and certain other non-ferrous mining companies, practice is far from uniform. Some deduct depletion and include it



in valuing inventories. Others charge depletion to surplus and do not include it in valuing inventories. Still others merely state that depletion is not taken.

"Our examination of this problem has indicated that accounting texts and most practicing accountants treat depletion of wasting assets as a necessary deduction before arriving at the annual profits. Certainly the cost of acquiring and developing mineral lands or rights must be recovered. . . . A few practicing accountants specializing in this field deny this position. Others seem to recognize the theory but claim there are cogent reasons for ignoring it. For example, that in many cases there is no practical way of determining the dollar amount to be taken.

"It has seemed to us that in principle (1) deduction of depletion on the income account is necessary. Accordingly, in case of deviation from this procedure, there has been required in the accountant's certificate a clear statement of the method followed and its consequences in the balance sheet and income statement."

#### Depletion Requirements of the New York Stock Exchange

The objective of the Exchange in accounting matters is to compel disclosure of all material facts and to promote sound principles of accounting.

In a letter to the author, the Director of Stock List of the New York Stock Exchange stated: (2)

"Our only requirement with respect to this question (depletion) is that in the listing application companies disclose the

1. Underlining not in original.
2. Letter from Director of Stock List, New York Stock Exchange, Phillip L. West, dated March 1, 1949, see Appendix, page 150.





basis on which depletion is charged and the theory underlying such basis where the asset subject to depletion are material. Further, we ask that listed companies with depletable assets show in their annual reports to stockholders.

- a) an indication as to whether or not an annual charge for depletion is made; and
- b) an indication as to whether a depletion reserve is accumulated or the annual charge applied directly against the related asset."

Thus, the New York Stock Exchange does not require the depletion of wasting assets in the published statements of listed companies. Nor do they apparently require an explanation if depletion is ignored.



1870-1871  
The first of the year was a very  
dry one, and the crops were  
very poor. The second of the year  
was a very wet one, and the crops  
were very good.

The third of the year was a very  
dry one, and the crops were  
very poor. The fourth of the year  
was a very wet one, and the crops  
were very good.

The fifth of the year was a very  
dry one, and the crops were  
very poor. The sixth of the year  
was a very wet one, and the crops  
were very good.

## Chapter III

### NON-FERROUS METAL RESOURCES

"It is not too much to say that depletion in the broad sense is a problem of metal mine accounting as it is to say that it is the problem of metal mine accounting. In short, it is the tail that wags the dog." (1)

The problem arises from the difficulty of estimating the reserves of ore in a resource on which to base a depletion rate. The usual practice in such properties is to develop only a comparatively small amount of ore in advance of current operations, a few months' supply or at the most a year or two. (2) The Tennessee Corporation "blocks off" reserves of two ten-year periods; when one ten-year period of ore reserve is exhausted, another ten-year period is developed. The Kennecott Copper Company employs a similar "crop basis," providing a ten-year reserve. The quantity of ore that is extracted in a year is offset by the development of a quantity of ore reserves.

The previous discussion regarding the feasibility of recognizing depletion when such depletion is a pure guess is particularly applicable in the exploitation of a non-ferrous metal mine. When no accurate estimate of ore reserves can be made, a depletion charge is pure guess. Such guessing

1. Short, F.G. - Depletion: The Pivotal Problem of Metal Mine Accounting, Journal of Accounting, Volume 72, page 229.
2. Accounting for Non-ferrous Metal Mining Properties, Journal of Accountancy, Volume 68, page 113.

ANNUAL REPORT OF THE

COMMISSIONERS OF THE  
LAND OFFICE  
FOR THE YEAR  
1877

The Commission of the Land Office has the honor to acknowledge the receipt of the report of the Surveyor General of the Territory of New Mexico, dated at Santa Fe, N. M., 10th day of December, 1877, and to transmit the same to the Senate of the United States, as required by law. The report of the Surveyor General contains a full and complete statement of the land and water resources of the Territory, and of the progress of the public land survey, and of the various other matters connected with the land office. The report is a valuable and interesting document, and is highly recommended to the attention of the Senate.

The Commission of the Land Office has the honor to acknowledge the receipt of the report of the Surveyor General of the Territory of New Mexico, dated at Santa Fe, N. M., 10th day of December, 1877, and to transmit the same to the Senate of the United States, as required by law. The report of the Surveyor General contains a full and complete statement of the land and water resources of the Territory, and of the progress of the public land survey, and of the various other matters connected with the land office. The report is a valuable and interesting document, and is highly recommended to the attention of the Senate.

is worse from an accounting viewpoint than ignoring depletion entirely. The problem of estimating the amount of recoverable ore can be likened to filling a goldfish bowl with black ink and dropping in a piece of black ribbon. Then let someone guess the length and width of the ribbon, sight unseen.

In his article, Natural Resource Assets (1), Peloubet stated that a certain mine in Spain has been producing ore since the days of the Phoenician traders and is still in production. Such a mine is the exception rather than the rule, but it does point out that a mine's life can be a long one. Some mines in the Western Hemisphere formerly operated by the Aztec and Inca Indians are still in production today. There are some mines in the United States which have been producing for years and which have no estimate made on the ore reserves at this date. The copper mine at Ducktown, Tennessee, produced metal for the Confederate Army and is still producing today. An inquiry disclosed that they do not know what the ore reserve is or how far depleted their mines are. As stated previously, they merely develop reserves ten to twenty years ahead of production. Thus, the longevity of some mines gives a sort of validity to the crop concept applied to those mines.

When a mine produces on a life which exceeds, say, forty or fifty years, it is possible to consider the production

1. Harvard Business Review, Volume 16, page 77.





as being on a "crop basis." In the case of a company developing ore reserves approximately equal to the amount of ore extracted during the period, it is not particularly hard to imagine this "crop concept." An example of this method is described by Frank Short in a recent article. (1) A gold mine in Ontario had a book value of \$2,000,000 in 1918. There was no means of determining the life or the content of the resource and only one year's supply had been developed in advance. In order to avoid paying out the income of that first year in the form of dividends, it was decided to charge income with an arbitrary depletion figure, based on a life of twenty years. Today the book value of this mining property is \$1.00 and the company is one of the outstanding gold mines of the world. Certainly this illustrates a crop basis of developing ore reserves one year in advance of production and recognizing depletion as a mere expedient to avoid larger dividend payments.

Rationalizing on the "crop basis," means justifying the position of certain mining firms which do not recognize depletion. As was implied in the above example, the gold mine will probably continue to produce for many years hence and "block out" one year's reserve of ore in advance of production. If placed on this basis, there is no cost to recover through income, because theoretically there is just as much ore at

1. Problem of Depletion, Journal of Accountancy, Volume 27, page 26.



the end of the year as there was at the beginning (i.e. one year's supply).

### Statement Presentation

An analysis of twenty-two non-ferrous mining companies' published annual reports produced the results tabulated in the appendix. (1) Of the twenty-two companies surveyed, nine did not deplete the resource; one of these nine intends to use unit depletion beginning January 1, 1948. Of the remaining thirteen companies that do deplete the metal resource, one makes a direct charge to surplus; two make the charge partly to income and partly to surplus. The remainder use the unit depletion method. The results of this small analysis are clear--there is no standard procedure in the non-ferrous mining industry in regard to the principle of recognizing depletion and no uniform method of matching depletion, if recognized, with revenue.

One possible error that looms large in this survey is whether or not depletion is considered as a cost of production. Unless the income statement definitely stated or showed that depletion was a cost of production, depletion was recorded in the cost of production column as negative. Most of the non-ferrous mining companies strike a net income figure before depletion (and depreciation) or else show depletion and

1. See Appendix, page 147.

THE ... OF ...

...

...



depreciation as a separate deduction before securing the net income figure. To show the book charges, depletion and depreciation separately either before or after striking a "net income" figure is a custom of the industry. In one case (1) even though the income statement was presented in this manner, depletion was considered a cost of production and was included in the inventories.

The valuation of the resource to be depleted has a wide range of bases. In a majority of cases, some intermediate valuation, such as the value as of March 1, 1913, has been established by the board of directors or by the management with subsequent additions at cost measured in terms of cash. In many cases the values of the resource has been determined by the par value of capital stock issued therefor. The reader has no method of knowing how close the par value comes to measuring cost in relation to a cash measurement. The practice of using a reserve for depletion, where depletion is recognized, seems to be preferred. In balance sheet presentation, it was not unusual to show the value of the resource net of depletion reserve. Development costs seem to be classified equally between an addition to the valuation of the resource or as a deferred charge.

1. See infra page 49, Calumet and Hecla Consolidated Copper Company.





## Case 1

## Calumet and Hecla Consolidated Copper Company (1)

The published statements of this company conveyed more information than the statements of most other non-ferrous metal mining companies. This company recognizes the principle of depletion, computes such a charge on a unit method, considers depletion as a cost of production, and includes depletion in its inventories.

The balance sheet, as of December 31, 1947, as presented to the stockholders shows the natural resource account as follows:

## Capital Assets

Real Estate (at cost)	\$3,448,976.53
Stumpage & Timber lands (at cost)	568,673.10
Mine Lands (at cost of ore in place)	8,932,006.33
Plant and Equipment	4,655,428.78
Decatur Plant under Construction	4,168,101.47
	<u>21,773,186.21</u>

## Other Assets

Exploration and Advances against Development of Mineral Properties	\$573,961.90
---	--------------

A footnote to the balance sheet states:

"Minelands are carried at depletable values allowed by the U.S. Treasury Department, reduced by reserves for depletion reflecting charges against past operations."

Another footnote to this balance sheet states:

1. Sources: Annual Report to Stockholders (1947)  
Annual Report (10-K 1947) filed with Securities and Exchange Commission  
Conversation with Mr. F. J. Gibbons, Assistant Treasurer of the Company.

THE

AMERICAN PEOPLE'S PARTY  
OFFICE OF THE NATIONAL CHAIRMAN

WASHINGTON, D. C.  
The American People's Party is a national political party  
which was organized in 1936. It is a party of the people  
and for the people. It is a party which stands for  
the rights of the individual and the rights of the people.

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for the rights of the individual and the rights of the people.

"Metal and metal products are carried at cost including depletion and depreciation."

The 1946 Balance Sheet presented the same information in a different manner.

Capital Assets		
Real Estate (at cost)		\$3,442,870.22
Stumpage and Timber Lands (at cost)		842,854.78
Mine Lands	\$34,321,861.59	
Plants	23,899,208.69	
	<u>58,221,070.28</u>	
Less Reserves for		
Depletion &		
Depreciation	45,342,544.66	12,878,525.62
Decatur Plant - preliminary cost		683,608.69
Total		<u>16,497,859.31</u>

This method of presenting the fixed assets was used by this company for years prior to 1946. The grouping of the depreciable and depletable assets and the corresponding reserves is used by many other companies in the industry. It does, however, conceal from the reader the book value of each type of asset.

The annual report for the year ending December 31, 1947 filed with the Securities and Exchange Commission (Form 10-K) (1) contains additional information. The depletion on mine lands is computed on copper produced at unit rates varying from .4¢ to 2.32¢ per pound because each mine is depleted separately.

1. File 136 (a), Boston Stock Exchange (1947).

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COUNTRY  
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The balance sheet showed the natural resource assets as follows:

Mine Lands (Schedule V)	\$34,846,764.60
Less Reserve for Depletion	<u>25,914,758.27</u>
	8,932,006.33

Schedule V showed the additions and deductions of asset accounts during the period.

Mine Lands, balance 1/1/47	\$34,221,861.59
Additions, at cost	<u>524,903.01</u>
Balance 12/31/47	34,846,764.60
Reserve for Depletion balance 1/1/47	25,633,781.80
Additions	
Charged to Profit & Loss	\$266,856.52
*Charged to other accounts	<u>16,746.53</u>
	283,603.05
	<u>25,917,384.85</u>
Less Error in 1946	<u>2,626.58</u>
	25,914,758.27

\*The charge to surplus was the result of an adjustment allowed by the Internal Revenue Agent.

The income statement as presented to the stockholders differed very slightly from that filed with the Securities and Exchange Commission. The income statement is worthy of abbreviated presentation because the method of showing depletion and depreciation is a common one in the industry.

THE STATE OF NEW YORK  
IN SENATE  
January 1, 1891.  
REPORT  
OF THE  
COMMISSIONERS OF THE LAND OFFICE  
IN RESPONSE TO A RESOLUTION  
PASSED BY THE SENATE  
MAY 1, 1890.  
ALBANY:  
J. B. LIPPINCOTT & CO. PRINTERS.  
1891.

Revenue from processing and selling metal and metal products		\$26,047,510.61
Cost of products sold:		
Production	\$19,971,935.67	
Freight, Selling Administration & Corporate Taxes	<u>2,393,100.81</u>	<u>22,365,036.48</u>
		3,682,474.13
Other Income		<u>702,028.29</u>
		4,384,502.52
Other Charges		<u>613,537.68</u>
Net Gain before Depletion, Depreciation and Income Tax		3,770,964.84
Depreciation	509,897.62	
Depletion	<u>260,118.35</u>	<u>770,015.97</u>
		3,000,948.87
Federal Income Tax		<u>969,465.58</u>
Net Gain carried to Earned Surplus		<u><u>2,931,483.29</u></u>

Because depreciation and depletion are book charges rather than out-of-pocket expenses, it has been the custom of the company and the industry to show them separately.

## Case 2

### Alaska Juneau Gold Mining Company (1)

The 1947 Balance Sheet shows the reserve for depletion subtracted from the total fixed assets as follows:

Property	\$10,574,467
Mine Development	3,060,848
Construction and Equipment	5,452,764
Outside Mining Ventures	<u>29,467</u>
Total	<u>19,117,546</u>
Less Reserve for Depletion and Depreciation	<u>7,535,551</u>
	<u>11,581,995</u>

1. Annual Report to Stockholders.

THE UNIVERSITY OF CHICAGO  
DIVISION OF THE PHYSICAL SCIENCES  
DEPARTMENT OF CHEMISTRY  
530 SOUTH EAST ASIAN AVENUE  
CHICAGO, ILLINOIS 60607  
U.S.A.  
TEL: 312/937-1234  
FAX: 312/937-1234  
E-MAIL: CHEM@CHICAGO.EDU  
WWW: WWW.CHEM.EDU  
The Department of Chemistry at the University of Chicago is a leading center for research in chemistry and related fields. It is home to many of the world's leading chemists and their students. The department is organized into several divisions, each with its own focus and expertise. The divisions are: Organic Chemistry, Inorganic Chemistry, Physical Chemistry, Analytical Chemistry, and Biochemistry. Each division has a strong tradition of research and teaching, and is well-equipped with state-of-the-art facilities. The department also has a strong commitment to public service and outreach, and is actively involved in many community and educational programs.

For more information, please contact the Department of Chemistry at the University of Chicago. You can reach us by phone, fax, or email. We would be happy to answer your questions and provide you with the information you need. We are a friendly and welcoming community, and we look forward to hearing from you. Thank you for your interest in the Department of Chemistry at the University of Chicago.

The increment in valuation resulting from an appraisal as of March 1, 1913 is added to the bottom of the balance sheet in accordance with the suggestion of Accounting Research Bulletin #5. (1) The write-up of \$5,305,816 is shown as follows:

Total Assets, exclusive of Unrealized Increment		\$15,091,010
Unrealized Increment at March 1, 1913		
Appraised Increase	\$5,305,816	
Less Reserve for Depletion	<u>1,442,604</u>	<u>3,863,212</u>
Total Assets		<u><u>18,952,222</u></u>

This write-up to the value allowed by the Revenue Acts is offset in the net worth section by a credit to Surplus Arising from Revaluation of Ore Deposits at March 1, 1913 of \$3,863,212.

Depletion based on cost is charged against income and depletion based on the unrealized appreciation is charged against surplus.

The company operated at a loss in 1943 and 1944 and has suspended operations since that time. In the back of their report there is a historical summary of operations concerning the years 1893 to 1947. It is interesting to note that in addition to showing the quantity of ore mined

1. American Institute of Accountants, Accounting Research Bulletin #5, Depreciation on Appreciation (April 1940), paragraph 10. Also see infra page 68, Climax Molybdenum.





and the revenue and expenses connected thereto that the net income figure shown excludes the depletion expense. This is probably done for the convenience of the reader in making comparison with the statements of those companies which ignore depletion in their accounts.

From the information given in the reports, the composite depletion charge is 4.32¢ per ton and the estimated content of the property is 315,633,000 tons as of 1947.

This company did not show depletion previous to 1936.

### Case 3

#### Anaconda Copper Mining Company (1)

This company depletes its timber resources and its phosphate deposits and yet does not deplete its metal resources. In the annual report submitted to stockholders and in the report filed with the Securities and Exchange Commission, there is no explanation to reconcile this apparent inconsistency other than on the grounds of company policy.

A footnote to the balance sheet states that:

"The company has consistently followed the practice of publishing its accounts without deduction for depletion of metal mines."

1. Sources: Annual Report to Stockholders (1947),  
Registration statement filed with Securities and  
Exchange Commission May 15, 1935, file number 1-1053.



The auditors, Pogson, Peloubet, and Company, state in their certificate, which accompanied the 1947 report that:

"The practice of the company and its subsidiaries in computing their net income or net loss without deduction for depletion of metal mines is in accordance with accepted accounting procedures in industries engaged in the mining of copper, zinc, lead, silver, and gold, and is in agreement with long established and consistently maintained accounting practices and procedures of this company."

In the annual report filed with the Securities and Exchange Commission for 1947, the following comment was made to the balance sheet:

"Mine Development: These expenditures cover development in connection with property of the registrant or subsidiaries and on properties leased from others or held under option.

"Mine development is written off on the basis of ore extracted and the rates are based on estimates of ore bodies benefited." (1)

This last "statement" means that they deplete part of their metal mine cost and do not deplete the other part. One gets the impression from the statement that as long as the company is consistent in its policies, it should not be criticized.

From the registration statement, the reader is able to determine the policy of the company in regard to mining its metal resources.

1. Underlining not in the original.





"A program of developing a ton of ore in reserve for each ton of ore mined."

Thus, Anaconda mines its ore reserves on a crop basis. No explanation is given in the published statements of the development program.

#### Case 4

##### Kennecott Copper Company (1)

The mining property accounts of this company are stated without decrease on account of depletion. However, the company does deplete its oil leaseholds.

The auditor's certificate does not explain the seeming inconsistency but states that:

"In our opinion, the practice of stating the accounts without deduction for depletion of metal mines is in accord with long accepted accounting procedures for metal mining companies approved by authoritative judicial decisions."

A footnote to Schedule V of the report states:

". . . no depletion is stated in the published reports. But for tax purposes, depletion based on March 1, 1913 values or on a percentage income basis is deducted and is noted on the books to conform with income tax regulations."

A clue to the "crop basis" is contained in a footnote to Schedule V:

1. Annual Report (1947) filed with Securities and Exchange Commission, File #75, Boston Stock Exchange.

THE UNIVERSITY OF CHICAGO  
CHICAGO, ILLINOIS  
JANUARY 1, 1900

TO THE PRESIDENT OF THE UNIVERSITY OF CHICAGO  
AND THE FACULTY

SIR:

I have the honor to acknowledge the receipt of your letter of the 29th inst. and in reply to inform you that the same has been forwarded to the proper authorities for their consideration.

I am, Sir, very respectfully,  
Yours truly,  
J. H. COOPER, President

"Deferred charges for stripping and mine development represent expenditures made at the mine which remain to be charged against future operations."

In summary the company depletes its oil resources, it amortizes its development expense--actually part of a depletion charge, but does not deplete its metal resources. Moreover, it is disclosed in the surplus statement that they did deplete a mine in Alaska, exhausted in 1924. The position of this company is more peculiar than that of the Anaconda Copper Company because for one metal mine, at least, depletion of the resource was recognized.

#### Case 5

Park Utah Consolidated Mines Company (1)

This company does not deplete its resource because it is impossible to compute a depletion charge. A footnote to the balance sheet explains:

"No provision is made for depletion of mine property which has been sustained in an unascertainable amount. If the amount of it were ascertainable, generally accepted accounting principles would require that depletion sustained to December 31, 1947 be provided for in the balance sheet and that depletion sustained in 1947 be provided for in the statement of operations."

1. Annual Report to Stockholders (1947).



### Valuation of a Natural Resource Asset

A depletion rate is based on two factors, the cost of the resource and the estimated recoverable units. It would seem that the cost factor should present the least difficulty of the two; that is, the amount of cost should be definite. If the mine property is carried at cost, it should be determined what measures that cost, cash or par value stock. A par value stock measurement, unaccompanied by a market value in terms of cash, results in a purely arbitrary valuation. Furthermore, the original cost, measured by either method, can be and frequently is changed by subsequent appraisals. The question then arises as to the validity of the book value of a resource asset. Several balance sheets of firms in this industry state, in footnotes, that the value assigned to the mining properties does not represent the present value of the property nor the present value of ores that can be extracted therefrom profitably. The following cases show some of the methods and techniques used in valuing a mineral resource.



THE UNIVERSITY OF CHICAGO  
CHICAGO, ILLINOIS  
JANUARY 10, 1900  
TO THE PRESIDENT OF THE UNIVERSITY OF CHICAGO  
FROM THE DEAN OF THE FACULTY  
SIR:  
I have the honor to acknowledge the receipt of your letter of the 7th inst. and in reply to inform you that the same has been forwarded to the proper authorities for their consideration.  
Very respectfully,  
J. H. COOPER, Dean of the Faculty

## Case 6

## American Metal Company (1)

A letter addressed to the company shows the method of valuation of the Pecos Mine according to the principles of Hoskold's formula:

December 4, 1925

"The Pecos Mine has an ore reserve of 1,000,000 tons running approximately 17% zinc, 5% lead, 1% copper, 3.5 ounces silver and .13 ounces gold (per ton).

"Based on these values, metallurgical tests carried out by the Minerals Separation Company at San Francisco, New York lead and St. Louis smelter prices of 7.5¢ each, and smelting and freight schedules which have been submitted by the smelter and railroad concerned, this ore has a net value per ton F.O.B. cars at proposed concentrate near Glorietta, New Mexico as follows:

"Accounting of lead concentrate	\$5.29	
Account of zinc concentrate	9.60	
Total value concentrate per ton of ore		\$14.89
Costs to mine and concentrate ore per ton		<u>6.00</u>
Net value or operating profit per ton		8.89

"It is proposed to exhaust this ore reserve at the rate of 200,000 tons annually, indicating an operating life of five years. The amount of annual profit would therefore be 200,000 x \$8.89 or \$1,778,000. The present value of an annual dividend of \$1,778,000 for five years @ 8% interest and 4% replacement of capital is:

\$1,778,000 x 3.78	=	\$6,720,840
Deduct Equipment Cost		<u>2,000,000</u>
Value of Mine 2 years hence		4,720,840



or a present value, deducting two years interest at 5%, of \$4,281,943. On reasonable assumptions, the present value of the Pecos Mine is \$4,250,000.

"The above information is based upon a physical examination of the property made by me in July and August of this year."

s/ Otto Sussman  
Mining Engineer

#### Case 7

##### Emporia Gold Mines, Incorporated (1)

The balance sheet as filed showed the valuation placed on property by par value stock. A portion of this balance sheet and accompanying footnotes follow:

Mineral Rights (Note A)	\$250,000	
Surface Lands	10,000	
Development (Note B)	35,721.15	
Assaying	<u>101.10</u>	\$295,822.25
Current Assets - Cash		3.55
Other Assets		
Fees for sale of stocks		<u>10,344.30</u>
TOTAL ASSETS		306,170.00

##### Note A:

The basis of valuation of the mineral rights is made on the sale of the entire issue of capital stock.

500,000 shares par value \$1.00	500,000
Less shares returned to treasury	<u>250,000</u>
Cost of Mineral Rights	250,000

1. Prospectus filed with the Securities and Exchange Commission, May 29, 1936.





Note B:

All development costs have been capitalized since the mine has not started operations.

This is an egregious example of a valuation at "cost", cost being measured by the net amount of par value stock issued. In this particular case, the stock returned to the treasury was, in part, subsequently sold to provide working capital. It seems logical that the cost on which any depletion figure should be based is the development cost of \$35,721.15. From the facts given, it is inferred that these development costs were paid in cash. If, however, some of this development expense included more par value stock, that amount of par value stock in excess of a reasonable value of the goods or services rendered should be excluded.

A depletion charge based on the arbitrary valuation figure would be meaningless. A depletion charge based on the development cost, under the assumption above, would result in a truer income statement. If the mineral rights did have some true value or cost, depletion should be computed on that amount plus the development cost.

(The Securities and Exchange Commission withheld their approval of the prospectus.)

THE HISTORY OF THE  
CITY OF BOSTON

From the first settlement of the  
city in 1630 to the present time  
the city has grown from a small  
village to a large metropolis.  
The city has been the seat of  
commerce and industry since  
its founding. The city has  
been the center of the  
New England trade.  
The city has been the  
seat of the government of  
the Commonwealth of Massachusetts.  
The city has been the  
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## Case 8

## Big Wedge Gold Mining Company (1)

The obvious facts of this case in regard to the valuation of the resource are summarized as follows:

The company's balance sheet as of September 8, 1934 contains an asset entitled "Intangible Assets, Lease (concerning thirteen identified and seventeen unidentified mining claims and an agreement to start operations) valued at \$3,000,000." Total liabilities are set forth at \$3,000,000 representing three million authorized shares given in consideration for the acquisition of the lease and agreement mentioned under the intangible asset above.

The \$3,000,000 figure in the balance sheet at which the assets of the company were carried, represented neither the cost of the property nor anything that can be termed "value" according to any standard of valuation that could be devised. It was an arbitrary figure which was simply the exact equivalent of the par value of stock given for the property.

(The Commission concluded that the item Intangible Assets - Lease would be more truly disclosed if valued at an amount of \$1,800.)

1. Securities and Exchange Commission Report, Volume 1, page 107.



## Case 9

## The Quincy Mining Company (1)

The mine, the mill and the smelter property, acquired from a predecessor company in 1932, were taken into the accounts at net amounts less an adjustment of \$47,745 on the mine. This reduction of \$47,745 was to bring the total amount for assets thus acquired, less liabilities assumed to the basis of \$40 per share for the capital stock issued in consideration therefor.

The above facts show how a mine property is valued in a lump sum purchase; that is, the value placed on the mine is a residue value. In this case the mill and smelter property were valued by the purchaser at the net book value in the predecessor's account. The difference between this amount and the amount of par value stock issued was the arbitrary value placed on the mine property.

The facts do not indicate whether this "differential" valuation of the mine property is greater or less than the predecessor's valuation as of March 1, 1913.

1. Annual Report filed with the Securities and Exchange Commission, File #66, Boston Stock Exchange.





## Case 10

## Richard Ramon Gold Mines, Ltd. (1)

This is a case where a valuation of a natural resource was originally measured by par value stock and later measured (at the suggestion of the Securities and Exchange Commission) at the selling price of such stock.

The company tried to reflect in its balance sheet the cost of mining properties acquired for 1,500,000 shares of one dollar par value stock. The first sale of stock to the "public" was transacted at a price of ten cents a share.

The Commission suggested that the mine be valued at \$150,000, the market value of the par value stock issued therefor.

Thus, here is an attempt to measure cost of resource by the market value of par value stock, as determined by a cost transaction.

## Case 11

## North Butte Mining Company (2)

The balance sheet showed the following:

1. Securities and Exchange Commission Reports, Volume 2, page 377.
2. Annual Report filed with the Securities and Exchange Commission (1947), File #58, Boston Stock Exchange.

# THE

PROCEEDINGS OF THE

ANNUAL MEETING OF THE

AMERICAN ASSOCIATION OF

PHYSIOLOGISTS, HELD AT

THE UNIVERSITY OF CHICAGO,

DECEMBER 29, 1900.

EDITED BY

W. H. RAPER, SECRETARY.

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Property Accounts

Mines, Mining Claims, Plant, etc.	\$5,606,994	
Less Reserve for Depreciation	<u>117,189</u>	\$5,489,805

Deferred and Prepaid Assets

Mines Development & Valuation	1,264,876
-------------------------------	-----------

Mines and mining claims are carried on the books at 1913 values. 1946 additions to this account were acquired upon dissolution of Amazon Butte Copper Company for stock owned by registrant and are valued on the books of account at \$295,095, which represents the cost of the stock as purchased.

In 1929 a segregation was made of the property accounts appearing on the books of the company so that the books would reflect separate accounts for Mines, Mining Claims, Deferred Development, Building Machinery, and Equipment, and in so doing a value of \$1,000,000 was placed on Deferred Development which is part of the \$1,264,876 currently appearing under this classification. (Similar arbitrary values were placed on the other fixed assets.)

With respect to the values placed on these assets, the management states that no appraisal was made by disinterested parties but that values entered were determined by officers and employees of the company and were considered by them as being conservative estimates of the value of these assets at that time.

General Statement

The following is a statement of the general principles of the organization, as adopted by the Board of Directors at its meeting held on the 1st day of January, 1900.

The organization is a non-profit corporation.

The purpose of the organization is to promote the general welfare of the community.

The organization shall be managed by a Board of Directors.

The Board of Directors shall have the right to elect and discontinue the officers and members of the organization.

The Board of Directors shall have the right to make and alter the by-laws of the organization.

The Board of Directors shall have the right to make and alter the rules of the organization.

The Board of Directors shall have the right to make and alter the regulations of the organization.

The Board of Directors shall have the right to make and alter the constitution of the organization.

The Board of Directors shall have the right to make and alter the charter of the organization.

The Board of Directors shall have the right to make and alter the laws of the organization.

The Board of Directors shall have the right to make and alter the decrees of the organization.

The Board of Directors shall have the right to make and alter the edicts of the organization.

The Board of Directors shall have the right to make and alter the orders of the organization.

The Board of Directors shall have the right to make and alter the commands of the organization.

The Board of Directors shall have the right to make and alter the injunctions of the organization.

The Board of Directors shall have the right to make and alter the prohibitions of the organization.

The Board of Directors shall have the right to make and alter the enactments of the organization.

The Board of Directors shall have the right to make and alter the statutes of the organization.

The Board of Directors shall have the right to make and alter the laws of the organization.

The Board of Directors shall have the right to make and alter the decrees of the organization.

The Board of Directors shall have the right to make and alter the edicts of the organization.

The Board of Directors shall have the right to make and alter the orders of the organization.

The Board of Directors shall have the right to make and alter the commands of the organization.



The value at which Mines and Mining Claims are carried on the books does not purport to represent the value of known ore or probable ore, but is based upon cost less recorded depletion plus a write-up in 1929 as of 1913.

The properties were idle from 1927 - 1942 except for a period in 1929-1930. No large ore bodies have been developed nor was any attempt made to develop large ore bodies in advance of production. The amount of depletion (reserve) is arbitrary and represents the amount written off on the books of the company, being \$4,256,505 previous to 1929 and \$242,421 for 1929-30-31. Further, the reserve is historical and does not form a basis for determining the remaining tonnages or value of ore bodies.

The management states that the policy of the company will be to deduct depletion on the basis of the total Deferred Mine Development and the valuation of Mines and Mining Claims in excess of cost.

The auditor's certificate states that:

"Depletion applicable to ore extraction in the years 1942 to 1947 inclusive has not yet been recorded, but will be entered on the books when determination of the correct amount is made."

The only reason that can be assigned to the deferred depletion is that no estimates are available from 1942 to 1947 as to the recoverable ore content. This might be a

The first of these is the question of the right of the  
people to know the truth about the actions of their  
government. This is a right which is as important as  
the right of free speech, and it is one which is often  
ignored. The government has a duty to provide the  
people with the information which they need to make  
informed decisions about the actions of their  
government. This information should be made  
available to the people in a form which is easy to  
understand and which is accessible to all. The  
government should also be open to criticism and  
accountability. The people should be able to hold  
the government to account for its actions and to  
demand that it act in the best interests of the  
people. This is the only way to ensure that the  
government is acting in a responsible and  
transparent manner. The people should be able to  
know the truth about the actions of their  
government and to hold it to account for its  
actions. This is the only way to ensure that the  
government is acting in a responsible and  
transparent manner.

"hedge" on whether or not depletion will be recognized, because it is a simple matter indeed to defer continuously the depletion charge and to make a comment to the effect that it will be made at some near future date.

This is a marginal mine operating only when the price of metal makes exploitations worth while. It could be assumed that a lump sum depletion charge when made might be arbitrary as the one made by this company as of 1929 - 1931.

## Case 12

### St. Joseph's Lead Company (1)

The balance sheet of this company shows the same mine property valued under three classifications, two of which are shown completely depleted.

#### Capital Assets

##### Ore Reserves and Mineral Rights

Appraised Value, March 1, 1913	\$13,500,000	
Less Reserve for Depletion	<u>13,500,000</u>	

##### Appreciation arising from Revaluation

subsequent to March 1, 1913	3,500,000	
Less Reserve for Depletion	<u>3,500,000</u>	

Additions subsequent to March 1,  
1913 at cost

	20,442,961	
Less Reserve Depletion	<u>17,867,669</u>	\$2,595,292

The depletion charge in 1947, amounting to \$268,951 was

1. Annual Report to Stockholders (1947).



correctly charged against income. In 1930-33 the depletion charge on the fully depleted "values" presented an interesting case, because the depletion on the property valued as of March 1, 1913 was charged against income--whereas depletion on the revaluation subsequent to March 1, 1913 was charged against surplus arising from such appraisal. Thus, for a short period, the company was depleting two increment values in two different ways. One by a charge to income, the other by a charge to surplus.

### Case 13

#### Climax Molybdenum (1)

The balance sheet for the company as at the end of 1947 presents its mining properties as follows:

##### Fixed Assets:

Mining Properties at Climax, Colorado (at cost)	\$951,986
Less Accumulated Depletion	<u>437,836</u>

Total Assets, exclusive of Discovered Increment   \$25,922,807

##### Discovered Increment:

Discovered Increment at Appraised value	74,131,250	
Less Reserve for Depletion	<u>32,968,200</u>	<u>41,163,050</u>

Total Assets, including Discovered Increment       67,085,857

A footnote to the statement explains that the discovered increment of the mine was appraised at \$75,131,250

1. Annual Report to Stockholders (1947).





in accordance with a survey made as of January 1, 1935 and approved by the stockholders. In fixing this valuation, the Board of Directors set forth "that the valuation is subject to revision when and as circumstances in the future may render advisable."

Another footnote explains that depletion on discovered increment is not charged against income but is excluded from operations and charged directly to Discovery Increment Surplus.

In one part of the statement, the account title Accumulated Depletion is used. This is in agreement with Accounting Research Bulletin #34 which suggests that some word other than "reserve" be used to show depletion and depreciation to date. A possible explanation of the two depletion titles used in the statement is to emphasize the incremental depletion and thus avoid confusion in the mind of the reader.

The 1935 Annual Report explains this Discovered Increment as the result of a survey made as of January 1, 1935 in which Hoskold's formula was employed to determine the valuation.



## Case 14

## Phelps Dodge Corporation (1)

This is one of the few companies that charges depletion directly to surplus. The following extracts are taken from the 1947 statements:

## Property Valuation (note C - Balance Sheet)

1. Mining properties acquired prior to March 1, 1913 and property acquired thru subsidiaries in 1917 and 1921 are carried at the Treasury Department values as of March 1, 1913.
2. Properties acquired from Calumet and Arizona in 1931 are carried on the basis of engineers estimated valuations as of date of acquisition.
3. Properties acquired from United Verde Copper Company are carried on the basis of cost.

These book values of mining properties do not necessarily indicate present day values, which could only be established by current appraisals, taking into account factors which vary from time to time, such as price of metal, rate of production, cost of labor, etc.

As a result of the use of March 1, 1913 values, the book values pertaining to certain mining properties include appreciation over the basis as determined by the par value of stock issued as of January 1, 1909 . . . On the basis of allocating a pro rata amount of the depletion taken to date on

1. Annual Report to Stockholders (1947).

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these properties to such appreciation, there would remain a balance of appreciation not yet depleted of approximately \$12,800,000.

The balance sheet as of December 31, 1947 shows:

Mining Properties and Claims	\$216,592,056
Less Allowance for Depletion of Mining Properties	<u>153,749,711</u>
	62,842,345
Morenci Open Pit Mine develop- ment, less amortization	5,028,004

The depletion policy of depleting each mine separately is stated in Note I.

"Depletion of Metal Mines charged to surplus is on a basis of units sold. The unit rates are computed on the values used in the balance sheet and the ore reserves of the respective mines estimated as of March 1, 1913 or the date of acquisition.

"Depletion used in United States Income Tax return has been computed on a statutory basis and differs from the amount shown in these accounts."

In the Auditor's Certificate the following statement explains the depletion charge:

"The practice of showing depletion as a separate deduction in the surplus account, rather than as a deduction in the income account, and accordingly to showing in the Income Account net income before depletion has been followed by the company for many years. While it is recognized that charges made for the amortization of cost fixed assets are generally shown as deductions in the income accounts, the difficulty of determining the extent of ore reserves and of allocating the depletion charges between

I am very glad to hear that you are well and hope  
you are enjoying your journey very much. I am  
very much interested in you.

With love to all, I remain, my dear friend,

Your affectionate friend,  
John G. Thompson

Enclosed find a letter from the  
American Society for the Advancement of Science.

I am very glad to hear that you are well and hope  
you are enjoying your journey very much. I am  
very much interested in you.

I am very glad to hear that you are well and hope  
you are enjoying your journey very much. I am  
very much interested in you.

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you are enjoying your journey very much. I am  
very much interested in you.

cost and appreciation, the variance in the amount of the charge during the different periods, depending upon the particular properties operated and other uncertainties and variables have caused the company to follow consistantly the practice above mentioned with respect to depletion."

The statement of Surplus shows the depletion charge as a separate item.

Surplus at the beginning of the year	\$41,929,843
Net Income, without deduction for depletion of mines	<u>43,817,664</u>
	85,757,507
Depletion for Metal Mines	<u>3,920,738</u>
	81,826,769
Dividends	<u>21,299,992</u>
Balance at the End of the Year	<u><u>60,527,477</u></u>

#### Case 15

#### Cliff Mining Company (1)

The balance sheet of this company appears as follows:

Current Assets		
Cash	\$9,686	
U.S. Securities	<u>75,000</u>	\$84,686
Fixed Assets		
Real Estate*		<u>1</u>
Total Assets		<u><u>84,687</u></u>
Current Liabilities		367
Capital Shares and Surplus		
Common Stock	1,500,000	
Deficit	<u>1,415,680</u>	<u>84,320</u>
Total Liabilities		<u><u>84,687</u></u>

1. Annual Report filed with the Securities and Exchange Commission, File #58, Boston Stock Exchange.



\*Real estate consists of 7,610 acres of mineral lands in Kennesaw County, Michigan formerly carried at \$645,382.26 which amount the Securities and Exchange Commission said closely represented the fair value. The present book value is not intended to imply that these lands are necessarily worthless but only that in the opinion of the Board of Directors, the actual present value cannot be ascertained.

The Auditor's Certificate stated:

"The United States Securities and Exchange Commission has requested that the company's assets be shown at an amount which more closely represents the fair value thereof. In response to this request and due to the difficulties encountered in arriving at a value acceptable for all purposes, the company has, in the interests of conservatism placed a nominal value of one dollar on its real estate holdings."

This is the only case in this inquiry where such a sharp devaluation was made to present the financial status of the company on a "conservative" basis. Needless to say, depletion from an accounting point of view will not exist. It is possible that the mining property may be revalued at some future date when and if the price of copper should rise enough to make mining of this property profitable.

#### Computation of the Depletion Charge

Where depletion is recognized in the non-ferrous metal mining industry, the basis for computing the charge is the unit method. Of the twenty-two companies which recognized





depletion (1), eleven computed depletion on the unit method, one company (2) used the percentage method and one company (3) used a method of periodic revaluation which not a true method of depletion but which achieves the same result. A variation of the unit depletion method is the use of a composite rate. For example, one company (4) with several mines uses a composite rate while another company (5) also with several mines used as a separate rate for each mine.

#### Case 16

##### Isle Royale Copper Company (6)

This company uses a unit of depletion rate which was established for it by the Bureau of Internal Revenue. The value of the mine lands is shown in the 1939 statement as follows:

Mine Lands and Underground Development	\$5,030,195.86
Less Reserve for Depletion	3,772,311.69
	<u>1,257,884.17</u>

The composite depletion rate computed for the company is 1.3772¢ per pound. In 1939 the company produced 8,094.88 pounds of refined copper. The depletion charge in the income

1. See Appendix, page 147.
2. See infra page 75, Homestake Mining Company
3. See infra page 78, Federal Mining and Smelting Company
4. See infra page 74, Isle Royale Copper Company
5. See supra page 49, Calumet and Hecla Consolidated Copper Company
6. Annual Report (1939) - Annual Report filed with the Securities and Exchange Commission (1947).



statement amounts to \$111,482.47 which is the product of the production and the rate, mentioned above.

In 1947 the company produced 6,251,373 pounds of copper and using the same rate of 1.3772¢ per pound arrived at a depletion charge of \$86,094 for the year 1947.

Thus, for a period of ten years this company has used the same composit rate to determine its depletion charge.

#### Case 17

##### The Homestake Mining Company (1)

This company uses a percentage method to deplete its metal and coal resources and the unit method to deplete its timber resources. The income statement for 1946 reflects both of these methods separately.

Net Income before Depreciation, Depletion and Federal Income Tax	\$5,662,497
Depreciation and Unit Depletion	304,137
	<u>5,358,360</u>
Provision for Federal Income Tax	1,429,711
	<u>3,928,648</u>
Provision for Percentage Depletion carried to Surplus	1,566,991
Net Income to Surplus	<u><u>2,361,657</u></u>

Unit depletion is credited to Reserve for Depletion account.

The statement of Consolidated Surplus shows the credit of percentage depletion as an adjustment to net income.

1. Annual Report to Stockholders (1946).

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Balance, January 1, 1946		\$3,825,117
Net Income	\$2,361,657	
Provision for Percentage Depletion charge to 1946 operations	<u>1,566,992</u>	<u>3,928,649</u>
		<u>7,753,766</u>
Dividends paid		<u>2,812,992</u>
Balance, December 31, 1946		<u><u>4,940,774</u></u>

"Depletion on the extraction of ore and coal is provided on the percentage basis allowed for federal income tax purposes. The percentage depletion on ore and coal mined is reflected in the consolidated statement of operations and has been carried direct to consolidated surplus."

The consolidated balance sheet reflects properties, plants and equipment at amounts representing 1913 value with subsequent additions at cost, less unit depletion on ore bodies, coal deposits and timber. The report of the General Manager shows a reserve of 21,524,000 tons of developed ore. Under no circumstances could this method be considered a crop concept. The present value of the ore, coal, and timber is not reflected in the balance sheet item of properties, plant and equipment, either gross or net after depletion, inasmuch as the books of the company are kept on the basis above stated and as the assets are not subject to interim appraisals.



## Case 18

## Inspiration Consolidated Copper Company (1)

This company does not deplete its mineral resource but does follow the policy of providing the estimated ore reserves as at the end of the year. This method would allow the reader or stockholder to compute the depletion rate which could presumably be applied to production to secure the depletion charge--if the reader desired to compare the statement of this company with that of another.

Year	Mines and Mining Claims	Estimated Reserves (million lbs)	Depletion Rate	Production Pounds	Depletion Charge
1945	\$17,533,709	779	.022507	52,292,670	\$117,695
1946	17,533,649	742	.023630	61,713,198	145,828
1947	17,537,649	823	.021309	73,834,198	157,349

However, such a separately computed charge would result in an overlapping deduction because this company does not capitalize development expense.

The company charges its development expense against income, and under the "crop" concept this charge is tantamount to a depletion charge. In the 1947 report the statement was made that development work resulted in an increase in ore reserves which more than offset the tonnage of ore extracted during the year. By this development method, the valuation of the resource Mines and Mining Claims changed little over

The first part of the paper is devoted to a general discussion of the problem of the origin of life. It is shown that the problem is not only a scientific one, but also a philosophical one. The scientific aspect of the problem is concerned with the question of how life first appeared on the earth. The philosophical aspect is concerned with the question of whether life is the result of chance or of necessity. The author argues that the scientific aspect of the problem is more important than the philosophical aspect, and that the scientific aspect of the problem is more difficult to solve than the philosophical aspect. The author then discusses the various theories of the origin of life, and shows that none of them is completely satisfactory. He then discusses the possibility of life existing elsewhere in the universe, and shows that this possibility is not ruled out by the laws of science. Finally, he discusses the possibility of life being created by a supernatural power, and shows that this possibility is not ruled out by the laws of science.

the year. For example, in 1925 the amount was \$17,550,150 which is substantially the same as the valuation on the books as of 1947.

On the face of it, there is little to criticize in the method of matching costs with revenues. However, looking at this method in the long run, there will come a time when under the present method of accounting the company will have a physically depleted resource and a non-depleted book value.

A solution might be to write down the assets when the trend of ore reserves begins to decrease from year to year. This write down measured by the difference in the ore reserves from one period to the next would result in a charge to income.

#### Case 19

##### Federal Mining and Smelting Company (1)

Until 1948 this company did not deplete its metal ore resources but pursued a unique method of periodic revaluation of those resources. From 1927 to 1947 the mining properties were valued under these assumptions:

"1. that the percentage of metals in the ore reserves will continue in the future substantially as in the past five years.

1. Source: Annual Report to Stockholders (1947),  
Annual Report to Stockholders (1948).





2. that operating costs in the next five years will be substantially the same as for the last five years.

3. that metallurgical recoveries will continue at the same levels as they have in the past.

"Granting the validity of the foregoing assumption, the future prices of the metals became the big factor in the periodic revaluations. It was further assumed that the average prices for the metals for the next five years would be the same as the averages of the last ten years. At the end of each year, the latest price would be added and the price of the earliest year dropped. Thus, the mining properties were valued on a moving average inventory "basis."

Exhibit I shows the comparison of the average metal prices used in the valuation formula and the actual metal prices as of december 31.

#### Exhibit I

##### Comparison of Actual and Average Metal Prices

	Average Prices Used in Valuation As of Dec. 31, 1946	Actual Prices As of Dec. 31 1946
Idaho:		
Lead, per 100 lbs.	\$6.100	\$12.55
Zinc, per 100 lbs.	7.170	10.50
Silver, per oz.	.714	.90
Tri-State:		
Lead concentrates, base price per ton	72.70	162.03
Zinc concentrates, base price per ton	47.12	64.00

1871

1872

1873

1874

1875

1876

1877

1878

1879

1880

1881

1882

1883

1884

"Since the balance sheet valuation of the mining properties is based on the future price of metals (among other factors), it should be remembered that if low prices prevail, this valuation will be overstated; if high prices prevail, this valuation will be understated."

The valuation of mine properties computed on an average price of the last ten years and of the last twenty years and the prices as of December 31, 1946 shown in Exhibit II illustrate the great disparity between the formula valuation and the current valuation.

## Exhibit II

### Schedule of Property Valuation with Price Bases

	Average Prices 10 years (1937-46)	Received 20 years (1927-46)	Actual Prices December 31, 1946
Idaho Properties:			
Lead, per 100 lbs.	\$6.10	\$5.52	\$12.55
Zinc, per 100 lbs.	7.17	5.95	10.50
Silver, per oz.	.7140	.6120	.90
Tri-State Properties:			
Lead Concentrate per ton	72.70	64.86	162.03
Zinc Concentrate per ton	42.12	38.92	64.00
Valuation of Mining Property per Balance Sheet			
	\$2,825.700	1,669,800	7,688,000

This valuation is based upon an estimate of known and probable ore. (1)

1. Probable ore represents ore which can confidently be expected to change into a position classification pending further development work. Quoted by A.W. Johnson, Intermediate Accounting from Securities and Exchange Commission Reports, Volume 2, page 150, in the matter of the Livingston Mining Company.





This method of valuation of mines was the result of a court decision by the Supreme Court of Delaware which stated that dividends could not be paid on common stock unless there were sufficient assets available to retire the preferred stock. In order to pay dividends to common stockholders, the company decided to adopt a method which would represent the current value of the mining properties. Although the preferred stock has been retired since 1939, the method of valuation was continued since no other method seemed better.

The adjustments of the property valuation were made directly to capital surplus. In a footnote to the income statement in 1936, the company declared that since depletion sustained is reflected in the value of mining properties as revalued at the end of the year and in the adjustment to capital surplus, no deduction for depletion is necessary.

In 1947 the company decided to alter its policy on mine property valuation because the method used was not adaptable to the present situation. Since 1947 was a year of unprecedented price rises, especially in metals, the application of the valuation formula used in previous years yielded a fantastic valuation which would be more misleading than useful.

As of December 31, 1947 the company decided to place estimated value on its mineral properties which would



be in accord with the current situation. It decided that the value on the books as of December 31, 1947 (unadjusted by any presented application of the formula) was the fairest and best that could be made. As of January 1, 1948, this value will be depleted each year on a "customary ore reserve basis."

The Annual Report of 1948 shows the results of this method of depletion. The entry made for the depletion charge for 1948 was:

Capital Surplus	\$335,924.74
-----------------	--------------

Mineral Lands	\$335,924.74
---------------	--------------

The two methods result in adjusting the book valuation of the mining properties through the capital surplus account. The difference in the two methods lies in the computation of the adjustment. The fact that the company computes its capital surplus adjustment on the unit method of depletion should militate for the inclusion of depletion as a cost of production in the income statement. As the present method operates, income is not charged with the total costs incurred during the period. Since the balance of the capital surplus account is \$1,460,867 as of December 31, 1948, this amount will be fully exhausted in five or six years at the present rate of production. It will be interesting to note at the end of that time whether the company will charge earned sur-



plus or income with the amount of depletion, or whether they cease to compute a depletion charge altogether.





## Chapter IV

### COAL AND IRON ORE RESOURCES (1)

The accounting for depletion of coal mining and iron mining properties differs from that of non-ferrous mining properties in that the content of the recoverable ore is more easily and more accurately determined. The recoverable coal or iron ore is usually found "in bulk" close to the surface of the ground. There are, however, some coal and iron mines which are subterranean. The non-ferrous metals, on the other hand, are found well underground and in thin veins--factors which make the estimate of recoverable ore difficult, if not impossible. Strictly speaking, the estimate of any underground resource is a guess. But, in the case of coal and iron ore, this guess is far more accurate because by means of drilling, engineers can delimit the area and get the depth of the resource and thus estimate the total volume. The estimate of an underground resource of coal or iron ore can be likened to the problem of guessing the number of marbles in a gold fish bowl in a drug store window. An interested person using care can make a reasonably accurate estimate of the number of marbles without actually counting them.

1. Coal mining and iron mining are distinct industries. However, for the purpose of this inquiry, they will be considered together because from a depletion point of view, there are too few dissimilarities to warrant separate treatment.



In discussing the depletion of non-ferrous metal resources, the practice of ignoring depletion seemed to be justified by the device of a "metal ore crop." (1) That is the situation when a firm does not know the extent of the resource and when the firm develops in a year as much "new" ore as they extracted during that same period. Thus, they had as much recoverable ore at the end of that period as they had at the beginning. Therefore, it was possible to condone the disregard of the depletion charge on the ground that the production of the ore was a crop which would recur each year. However, such a concept is not practical in coal or iron ore mining because the estimate of the recoverable units of the underground resource is based on a scientific method rather than a guess.

The recognition of depletion in the coal and iron ore mining industry is almost universal since the advent of the income tax law. There was not a single coal or iron mining company investigated during the course of this inquiry which ignored depletion.

However, there is little uniformity in regard to including depletion as a cost of production. Some companies stated that depletion was considered a cost of production; others that it was not; some did not even mention the matter.

1. See supra page 46, Non-ferrous metal resources.





Those in the latter group usually showed depletion and depreciation as book charges deducted from "net income before depletion and depreciation." One might guess from such an income statement presentation that depletion was not a cost of production. However, with such statement presentation, a larger copper company (1) did consider depletion as a cost of production in its internal statements. Income statement presentation showing a net income before the deduction of the book charges was a custom in the mining industry. A great many companies still follow that custom today. (2)

The valuation of the natural resource properties in the published statements of most coal and iron ore mining companies is the value as of March 1, 1913--a basis for depletion allowed by the federal income tax laws. Subsequent additions are, as usual, valued at cost. The Hoskold formula was a device frequently employed to determine the value (usually retroactively) of a coal or iron ore resource. Briefly, that formula computed the present value of profits to be gained from mining the resource during its life. (3) Strictly speaking, the use of a value as of a certain date in

1. See infra page 49, Calumet and Hecla Consolidated Copper Company.
2. This situation was learned as a result of a conversation with a company official. Upon similar personal inquiry with a large coal company whose office is in Boston, no information was given to supplement that stated in their published statements.
3. See supra page 59, American Metal Company and infra page 92, Seneca Coal Mining Company.



lieu of cost is not good accounting theory. Depletion is a recovery of cost; it should not be a recovery of some value assigned as cost as of some date. Because of the tax convenience of using the 1913 value, a majority of coal and iron mining companies founded before 1913 use this valuation in their published statements and charge income with depletion based on this valuation. Consistency in this regard has caused depletion on the March 1913 valuation to be recognized as an accepted accounting practice. An Accounting Research Bulletin states: (1)

"The capital value of a mine is in theory, the sum on which the mine may be expected to yield a fair return after provision has been made for amortization of that capital value. The accounting basis will normally be cost, but where the present value of future income is very greatly in excess of the unamortized part of the cost of the mine to the corporation which owns it, a balance sheet of the corporation in which the properties are stated at cost may be less useful to the average investor than a balance sheet in which the properties are stated at a figure more nearly commensurate with existing values, and on which depletion is computed accordingly. In this . . . there is considerable question as to whether the situation cannot best be shown in the form of supplementary information not included in the accounts.

"It has been suggested that one method of including the appraisal in the balance sheet with the least disturbance is to

1. Depreciation on Appreciation, Accounting Research Bulletin #5, American Institute of Accountants (1940), paragraph 11, page 40.





show the entire balance sheet on a cost basis, with totals, and then to add on the assets side the unamortized amount of the property appraisal increment, and on the liabilities side the corresponding appraisal credit."

### Calculating the Depletion Charge

The unit method of depletion is most commonly used in the coal and iron ore mining industries. In a survey of twenty-four coal companies made in 1944 by the Office of Price Administration, it was found that all used the unit method of depletion. (1) A few coal companies do use the percentage method of depletion based on the rate of five percent allowed by the federal income tax law. (2)

### Statement Presentation

The following cases will illustrate the various ways which the coal and iron ore mining companies present information to their stockholders and to the regulatory agencies.

#### Case 20

##### West Virginia Coal Company (3)

In 1917 the company acquired a lease on the Stone Cliff mine from the Stone Cliff Mine and Coal Company through

1. See infra page 101, National Coal Association.
2. See infra page 103, Wyodak Coal and Manufacturing Company.
3. Board of Tax Appeals Reports, Volume 25, page 374, (1929).





the president of the latter company, one Thomas Beury. The terms of the lease were complex.

- a) The company credited Beury on an old account for \$37,500 and gave Beury 500 shares of Elmo Mining Company stock
- b) Beury procured an assignment of the lease on the Stone Cliff mine and transferred to the company bonds of the Stone Cliff Mine Company held by a bank as collateral on an old loan

The company made the following journal entry on its books:

T.C. Beury	\$125,000	
Investment Account		\$125,000
Sale of stock of Elmo Mining Co.		
Investment Account	162,500	
T.C. Beury		162,500
Purchase of lease on Stone Cliff Mine		
Elmo Mining Company	5,000	
T.C. Beury		5,000
Note of Elmo Mining Company assumed by Beury		

The valuation of the above purchase is analyzed as follows:

Leasehold	\$120,000.00
Plant and Equipment	34,101.24
Store Merchandise	8,398.78

These amounts represent actual cash value of properties acquired by the company.

At the time the Stone Cliff properties were acquired, the recoverable coal was estimated at 1,000,000 tons. The



part of the property then being worked, containing 280,000 tons, was separated from the remainder of the property by a fault. As other operators on the other side of the fault adjacent to the Stone Cliff property were getting a good quality of coal, it was believed by the company that by going through the fault they would recover the remainder of the coal.

In 1918 the company went several hundred feet into the fault without reaching the seam before it abandoned its efforts. As of the close of 1918, allowing for the fault, the amount of recoverable coal was 600,000 tons. A major reason for abandoning the effort of locating the seam was a drop in demand for coal in 1918.

The production schedule for 1918 amounted to 23,972 (net) tons. The reasonable allowance for depletion should be based on the estimated reserve of 600,000 tons. The unit depletion charge based on the cost of the lease of \$120,000 is 20 cents per ton. The annual depletion charge allowed was 23,972 tons @ \$.20 per ton or \$4,794.40 for the year.

This case again demonstrates the uncertain factors in estimating underground inventory. The value of the lease was an apportionment of the total price of the stock of the Elmo Mining Company \$125,000 plus the \$37,500 credit, a total of \$162,500.





## Case 21

## North American Coal Corporation (1)

In 1917 the Bannock Coal Company transferred the Taplin Mine lease and all properties connected therewith to the corporation for 2,120 shares of \$100 par value capital stock. These properties were brought on the books at first under a lump sum of \$212,000. Shortly thereafter a segregation of assets was made on the books as follows:

Leasehold	\$136,248.55
Machinery and Equipment	74,416.50
Supplies	1,334.95

The machinery and equipment and supplies were recorded at the same values as carried on the books of the Bannock Coal Company. The value assigned to the leasehold was therefore a residual value.

The estimated content of the Taplin Mine was 1,418,968 tons of recoverable coal. The depletion rate was computed as:

$$\frac{\$136,248.55}{1,418,968 \text{ tons}} = 9.532\text{¢ per ton}$$

The following schedule shows the production schedule from 1917 to 1920:

1. Board of Tax Appeals Reports, Volume 28, page 816, (1933).



Year	Tons Mined	Depletion Charge
1917	55,686	\$5,308.43
1918	99,781	9,511.56
1919	93,636	8,925.84
to 9/30/20	62,085	5,918.38
Total	311,188	29,664.21

The lease was sold on September 20, 1922. At that date the balance sheet showed the property as follows:

Leasehold	\$136,248.55
Less Reserve for depletion	29,664.21
	<u>106,584.34</u>

This case illustrates a method of assigning a value to a mining property and the manner of computing depletion thereon, where such property is acquired with other assets for a lump sum.

#### Valuation of the Resource

##### Case 22

##### Seneca Coal Mining Company (1)

The value of a coal mine of this company was determined by the use of Hoskold's formula, as follows: (2)

Estimated tons of coal recoverable as 3/1/13 \$2,214,363

Total operating profit 1905 to 1913 \$281,424.89

Operating profit per tons 1905 to 1913 .199

Total Expected Earnings

2,214,363 x \$0.199 440,658.24

Total expected earnings discounted at

8% with a sinking fund invested

at 4% for 18 years 205,734.52

1. Board of Tax Appeals Reports, Volume 2, page 513 (1925).
2. See American Metal Company case, supra page 59.



Less		
Value of Plant and Equipment	\$94,290.90	
Estimated Plant Renewal	<u>15,000.00</u>	<u>\$109,290.90</u>
Value of coal deposit as at March 1, 1913		96,443.62
Depletion rate per ton mined after March 1, 1913		0.0436

## Case 23

## Island Creek Coal Company (1)

This company depleted its bituminous coal resources on a unit of production method, using a separate rate for each mine. The Auditor's Certificate in the financial reports states that the company's depletion policy is in general to charge against current revenue such amounts based upon rates applied to tonnage sold as will provide for the exhaustion of mining properties at the end of their expected useful lives.

The several mining properties of the company are valued at the appraised value of the property acquired in June 1915, as determined by the Bureau of Internal Revenue, with subsequent additions at cost. The company in a statement to the New York Stock Exchange (1940) estimated that the unmined recoverable coal in lands owned and leased by the

1. Source: Annual Report to Securities and Exchange Commission (1947); Annual Report to Stockholders (1947); Registration Statement with Securities and Exchange Commission, File 1 - 989.





company and its subsidiaries approximated 526 million tons. Based on the present rate of production, it is estimated that the life of the present properties will be approximately seventy years.

The company depletes each mine separately. These rates range from one cent per ton to five cents per ton. In the case of one subsidiary, the rates are two and one-half cents to four and one-half cents per ton, depending upon the type of coal mined.

In the statement filed with the Securities and Exchange Commission, the company stated that depletion was not considered an element of cost of sales.

The Pond Creek Pocahontas Company is operated by the same management as the Island Creek Coal Company. As might be expected, the depletion policies are alike, the only difference being a slightly higher depletion rate for their mines. These properties were valued by the issuance of 36,000 shares of no-par stock, with a stated value \$15 per share, the price at which some shares were sold for cash with subsequent additions at cost.

It should be noted that these two companies base their depletion charge, not on the ore removed, but on the ore tonnage sold. (1) Thus depletion is automatically excluded from the valuation of inventories.

1. See supra page 77, Inspiration Copper Company



## Case 24

## Cleveland Cliffs Iron Company (1)

This company resulted from the consolidation of the Cliffs Corporation and the Cleveland Cliffs Iron Company on July 9, 1947. Property valuations are recorded on the same basis as the predecessor companies.

The balance sheet disclosed the valuation of the mining properties and the other fixed assets on the bases used by the predecessor corporations for federal income tax purposes. The amount of the write-up to the March 1, 1913 value is shown separately at the bottom of the balance sheet. A portion of this financial statement which pertains to the property as of December 31, 1947 follows:

Iron ore lands and leases, timber and coal lands, plants equipment and vessels	\$36,918,766
Less Reserves for depletion, depreciation and amortiza- tion	22,859,080

At the bottom of the body of the balance sheet, the write-up of fixed assets, is shown as an increment to

1. Source: Annual Report to Stockholders for 1946 and for 1947; Exhibits to Special Report to Stockholders (April 1947). This report concerned the announcement of a special meeting to vote on the proposed consolidation.





total assets. This increment, in accord with Accounting Research Bulletin Number 5, is also subject to depletion. (1)

"Add: Adjustments of properties and  
investments to amount established  
for federal income tax purposes

Iron ore lands and leases, timberlands and plant	\$31,785,702
Less Reserves for depletion	22,245,433
	<u>9,540,269</u>

The surplus statement shows the reserve resulting from the property appraisal as follows:

"Surplus arising from adjustment of properties and investments to amounts established for federal income tax purposes	\$10,774,163
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This surplus is not further analyzed, but one may readily assume for the information above that the breakdown of this revaluation surplus account is:

Adjustment of properties plant, etc.	\$9,540,269
Adjustment of investments	1,233,894
	<u>10,774,163</u>

A footnote explains the valuation of the mining properties. Coal lands are stated principally on the basis of cost, the iron lands and leases as well as timber are carried at value as of March 1, 1913, as established for federal income tax purposes.

The company uses the unit method of depletion. Depletion based on cost is charged against income, while

1. See supra page 87.



depletion on the adjusted values is charged against surplus. Each mine is depleted as a unit.

The Auditor's Certificate to the annual report stated in regard to the depletion policy of the company that:

"In accordance with its previous practice . . . the company has charged the applicable portion of provisions for depletion direct to surplus arising from adjustment of properties and investments to amounts established for federal income tax purpose. We recognize that the current trend in accounting practice is to charge such provisions for depletion against income (transferring a like amount from unearned surplus) but we do not think the practice has crystallized to the point where the company should be required to deviate from this long established practice of its constituent."

The "current trend" in the above certificate about charging income with the depletion charge on the appraisal value refers to Accounting Research Bulletin Number 5, where on page 38 it states that:

". . . income should be charged with depreciation (and depletion) computed on higher values."



Computation of the Depletion Charge

## Case 25

## United States Steel Corporation (1)

The iron ore properties of this company are estimated to contain ore reserves which can be mined for at least 35 years. The Oliver Mining Company, a subsidiary, conducts most of the operations in the Lake Superior Region; approximately 97% of the ore obtained from this area in 1939 was from leased mines.

A footnote to the consolidate balance sheet states that:

"The values at which the tangible property, plants and equipment are carried in the consolidated balance sheet have been determined from and based upon the findings of the United States Bureau of Corporations, and accepted by the Internal Revenue Department, as at the initial date of organization of the Corporation, plus actual cost of additions since, less credits for cost of property sold or retired."

Stripping and development expenditures are charged to a separate account of the same name when incurred and are amortized when the minerals are removed from the properties.

The amortization rate per ton is arrived at by dividing the expenditures by the estimated tonnage of materials removable from the properties. The total amount charged off

1. Registration statement filed with the Securities and Exchange Commission, File #2-4390 (1939).





each year is determined by applying this rate to the actual tonnage of minerals removed during the year.

The depletion policy is stated in a footnote to Schedule XVI:

"The depletion rate per ton or unit mined or exhausted of raw materials (ore, coal, limestone, timber, etc.) is the pro rata investment cost of same arrived at by dividing the total estimated recoverable quantity in the respective properties in operation into the total investment cost of same. The annual provision is determined by applying this rate to the actual quantity mined. A separate rate is computed for each mine."

#### Case 26

##### Pittsburg Steel Company (1)

This company depletes its coal resource by the "text book" method. The value of the mine divided by the estimated tonnage recoverable gives depletion rate which is applied to current production to determine the current depletion charge.

The company states that a rate is thus determined for each mine and that the rates are corrected periodically from revised estimates of the tonnage of coal recoverable.

1. Registration Statement (A-2) filed with the Securities and Exchange Commission, December 2, 1941 (File #2-4905).



## Case 27

## Consolidated Coal Company, Inc. (1)

This company uses a flat rate to deplete its coal resources. Depletion of the coal resources of this company has been provided since 1935 on the flat rate of two cents per ton of coal mined. This company used what could be termed a composite depletion rate for the production from all mines. However, no indication was given to the procedure of determining the depletion rate. It could represent the approximate quotient of the value of the resource and the estimated reserves, or it could represent an arbitrary figure.

## Case 28

## Philadelphia and Reading Coal and Iron Company (2)

This company also uses a composite rate of depletion, five cents per ton on coal mined. No information was given on the determination of this rate. The stripping expense, however, is amortized on the basis of recoverable tonnage.

1. Source: Annual Report to Stockholders (1944),  
Special Statement to Stockholders for the three  
years ending December 31, 1942.
2. Annual Report to Stockholders (1947).





## Case 29

## National Coal Association (1)

The issue between the Office of Price Administration (OPA) and the National Coal Association involved the question as to whether percentage depletion of coal lands was an accepted accounting practice for the purpose of establishing prices in the coal industry. The Office of Price Administration objected to the use of percentage depletion as a cost determinant on the ground that:

- "a) percentage depletion was not an accounting practice accepted by leading accounting organizations, such as the American Institute of Accounting.
- b) that percentage depletion has not been adopted by the companies in the coal industry for general corporate accounting or cost accounting purposes with a few exceptions.
- c) that the method of percentage depletion would result in charges to income in excess of the original cost."

The National Coal Association contended that what was allowed as a cost to be deducted from revenue by one federal bureau, the Bureau of Internal Revenue, should be allowed by another federal bureau. Since percentage depletion is allowed for the purpose of federal income taxes, it should be allowed by another bureau for the purpose of setting prices under the

1. Statement by Paul M. Green, Deputy Administrator for Accounting of the Office of Price Administration before the Senate Banking and Currency Committee, March 21, 1945. Text of statement quoted in Journal of Accountancy, Volume 79, page 415 (May 1945).



Emergency Price Control Act. The government bureaus should at least be consistant in their accounting requirements.

The Office of Price Administration countered with a survey of statements filed with the Securities and Exchange Commission showing that the general practice of accounting for depletion of twenty-four coal companies in the industry was the unit of production method.

A list of companies included in the survey follows:

The American Coal Company  
Ayrshire Patoka Collieries Corporation  
Easter Gas and Fuel Associates  
Elkhorn Coal Corporation  
M.S. Hanna Company  
The Hatfield-Cambell Creek Coal Corporation  
The Hudson Coal Corporation  
Island Creek Coal Company  
The Lehigh Valley Coal Company  
The Lehigh Valley Coal Corporation  
New River Company  
The Pacific Coast Company  
Peabody Coal Company  
Pennsylvania Coal and Coke Corporation  
The Philadelphia and Reading Coal and Iron Company  
The Pittston Company  
Pond Creek Pocahontas Company  
St. Louis, Rocky Mountain, and Pacific Company  
Truax-Traer Coal Company  
The United Electric Coal Companies  
Virginia Iron Coal and Coke Company  
Westmoreland, Inc.  
West Virginia Coal and Coke Corporation



## Case 30

## Wyodak Coal and Manufacturing Company (1)

This company, a wholly owned subsidiary of the Homestake Mining Company, (2) depletes its coal resource on a percentage basis. The method of charging this percentage depletion to the accounts is identical with the method employed by the parent company. The portion of depletion in excess of the unit depletion based on cost is credited to a special surplus account, Depletion Reserve - percentage basis in excess of cost.

The effect of this method is to overcharge income by the amount of this depletion in excess of cost. The full effect of this method is realized upon seeing the amounts of the accumulated depletion in each account as of December 31, 1938.

Depletion reserve on cost	\$999.25
Depletion reserve, percentage basis in excess of cost	33,910.02

The percentage rate of 5 percent used to deplete the coal resource is that allowed for federal income tax purposes.

1. Source: Annual Report to Stockholders (December 31, 1938) Registration statement filed with the Securities and Exchange Commission by the Homestake Mining Company, December 31, 1938, File #1-1235.
2. See supra page 75, Homestake Mining Company.





The company with a deficit of \$15,534.99 as of December 31, 1938 paid dividends during the year on the basis of percentage depletion.

### Case 31

#### Sloss Sheffield Steel and Iron Company (1)

Provision for depletion of mineral properties during 1940 was based on the unit method, using rates allowed by the United States Treasury Department for income tax purposes.

The rate on coal varies from  $4\frac{1}{2}\text{¢}$  to  $7\frac{1}{2}\text{¢}$  per ton and on ore from  $11\text{¢}$  to  $26.5867\text{¢}$  per ton.

The unit rate on the iron ore properties owned by the company on August 1, 1917 was  $4\frac{1}{2}\text{¢}$  per ton of brown ore.

The unit rate on properties acquired by the company subsequent to August 1, 1917 was the figure per ton determined by the actual apportionment of cost of said properties to mineral reserves acquired.

The company did not state its estimated ore or coal reserves.

1. Annual Report filed with the Securities and Exchange Commission (form 10-K) December 31, 1940.



## Case 32

## Sterling Coal Company, Ltd. (1)

The company acquired the Cecil property in 1910 consisting of a mine opening and 1179 acres of coal land in the Freeport seam in Taylor County, West Virginia.

The revised fair market value as of March 1, 1913 was \$171,737.24 and the estimated coal content was 4,681,577 tons.

$$\frac{\$171,737.24}{4,481,577 \text{ tons}} = 3.66837 \text{ cents per ton}$$

By reason of conditions developed in the Cecil Mine in the latter part of 1922, the company made tests which established that there was no additional minable coal in the 1179 acres which constituted the mine. The mine was abandoned in January 1923 after 372,206 tons of coal had been mined, of which 337,783 had been extracted after March 1, 1913.

This case demonstrates the impossibility of accurately estimating the content of a hidden deposit and of forecasting prices. In this case, it appears that there is more coal but that it is of inferior quality--that is to say, as of 1923, it was unprofitable to mine any more of the seam. Thus, the influence of the general price level shows that in bad times only the best grade of coal will be extracted and in good times it is profitable to mine the poorer qualities of natural deposit.





## Case 32

## United Electrical Coal Company (1)

A good illustration of one of the differences between depletion and depreciation is contained in the income statement of this company for the year ended December 31, 1947. An item in the income statement reads:

Shutdown expense during strike  
(including depreciation of \$6,111.54)    \$37,286.43

This information indicates that depreciation is charged to the accounts according to time regardless of operations and that depletion is charged to the accounts only when production occurs. The depreciation charge in this case is separated from the operating expenses and placed in an extraordinary (non-recurring) expense account.



## Chapter V

### PETROLEUM RESOURCES

Depletion of oil resources, like depletion of minerals, is simple in theory and complex in application. The physical factors affecting the application of the theory of depletion to a petroleum resource are:

- (a) the difficulty of valuation of the unseen underground resource
- (b) the migratory nature of oil reserves
- (c) the carrying cost of undeveloped properties
- (d) the uncertainty of discovering oil
- (e) the uncertainty of estimated production
- (f) threat of fire loss
- (g) and fluctuation in the market price of crude oil. (1)

The analogy of the vinegar keg will illustrate the simple aspect of this problem. A rural grocer purchases a fifty gallon keg of vinegar for \$10, with the intention of selling vinegar in small lots to his customers. The cost of each gallon drawn for sale is 20¢, computed by dividing the cost, \$10, by the number of gallons, 50. Thus, after selling twenty-five gallons of vinegar at 30¢ per gallon, the grocer has recovered half of his initial cost and has "half depleted" his vinegar keg.

Depletion of a petroleum resource is likewise a recovery of cost through selling price, but unlike the vinegar analogy, the volume of the underground petroleum keg is

1. Andrus, H.A. - Accounting for Depletion of Oil Lands, Journal of Accountancy (1936) Volume 62, page 104.



unknown. The problem in the petroleum industry is complicated by the fact that competition may also be tapping the same petroleum "keg" and further complicated by a governmental restriction of production.

Depletion literally means to empty out. This dictionary definition of depletion fits nicely the concept of petroleum exploitation--literally an emptying out of an underground reservoir. However, in the accounting sense, depletion means a recovery of cost of the reservoir as measured by this process of emptying out. Depletion of a petroleum resource determines, in part, how much of the sales dollar is income and how much is a return of cost. Depletion has been defined as the cost of oil in the ground and as such is part of the cost of oil produced and sold. (1) Since each barrel of oil recovered from the underground reservoir can't be replaced, it may be concluded that the selling price of each barrel represents three items: a return of the expense of extracting the barrel, a proportionate return of the initial cost of the underground reservoir and a profit.

#### Valuation of the Petroleum Resource

Practically all oil producing companies in the United States record depletion on cost in their corporate

1. Andrus - Accounting for the Depletion of Oil Lands,  
Journal of Accountancy, Volume 62, pages 103-4.





books. (1) However, not all the valuation of the wasting assets of these companies were presented in the financial statements at cost. For example, the Continental Oil Company carries its wasting assets on the books at a valuation made by management as of October 1932 with subsequent additions at cost. The Standard Oil Company of California uses the values approved by the directors at the date of organization in 1926 with subsequent additions at cost. The Pure Oil Company carries the appraised values as of April 1, 1932 with additions at cost. The Sinclair Oil Company assets are carried at values determined by the board of directors as of January 1, 1932. In the case of the Tide Water Associated Oil Company, the values of the assets are carried at cost, but this cost is measured not only by cash but also by bonds and capital stock.

The problem of the valuation of the petroleum resource seems to revolve upon the question of what to charge against future income and what to charge against current income.

While some of the oil producing properties carried on a company's book consist of land held in fee, most of such properties consist of land held under a lease agreement. (2)

1. Foraste - Depletion in the Oil Industry (1943) page 2.
2. Preferable Method of Method Most Used for Recording Cost Depletion and Amortization of Drilling Costs on a Large Track of Land which Is only Partially Developed - T.G. Higgins, N.Y. Certified Public Accountant (April 1940) Volume 10, page 405.



The lease gives the oil company the exclusive right to drill for oil on a certain piece of land within a certain period. The consideration for a lease includes an immediate cash payment, called a bonus or advanced royalty; a series of periodical payments until production from the property begins, called land rental or delayed rental; and a fractional interest in the production called the royalty.

Accounting theory would require that the bonus be capitalized and charged against the income of some future period, that is when the resource produces. In his survey, Foraste found that thirty of the thirty-two companies capitalized their bonus payments charging Unoperated Acreage or to some comparable asset account. (1) Some companies charged the bonus to future income as measured by production. Others began immediately to amortize the bonus based on the life of the lease until production commences, at which time it becomes subject to depletion. (2) Eleven of the thirty-two companies followed this method of amortization and depletion. (3)

Since the land rental is paid in advance of actual production, accounting theory would require that such rentals be capitalized and charged against the future income from that contemplated production. Some companies capitalized lease

1. Foraste - Depletion in the Oil Industry, page 47.
2. Higgins - Preferable Method of Method Most Used for Recording Cost Depletion, New York Certified Public Accountant, Volume 10, page 405.
3. Foraste - Depletion in the Oil Industry.





rentals paid, but the majority charge these items to income as expended. (1)

The amount of land rental is usually nominal, averaging thirty-eight cents an acre for all companies in the United States. (2) Of the thirty-two companies in the Foraste survey, three capitalized land rentals and twenty-nine charged them off as expense. (3) However, in theory, the bonus cost plus the lease rentals to the time that production starts should be capitalized and charged against future income by the unit method of depletion.

The land or the lease of an oil producing or developed or undeveloped property may be purchased outright for cash, in which case it is charged to the property account, the operated acreage, or the unoperated acreage account, depending on the situation. That is, they are treated as the purchase of any asset--the price being recorded as the cost of the asset.

There is disagreement in regard to the accounting treatment of intangible development costs. The costs of each well can be classified as 40% tangible and 60% intangible. (4) Intangible development costs are defined as those expenditures

1. Higgins - Preferable Method for Recording Cost Depletion, page 405.
2. Foraste - Depletion in the Oil Industry, page 23.
3. Ibid. page 23
4. Ibid. page 23, These percentages were suggested by experts he consulted and were confirmed by the confidential answers to his survey.

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for wages, supplies, etc., necessary to prepare a well for production, which expenditures have no salvage values. (1)

Prior to the depression of the 1930's such costs were charged off as expense. Since that time, however, it has become accounting policy in the industry to capitalize such expenditures and either deplete or amortize them.

Referring to Foraste's survey again, the present accounting practice of thirty-two companies is summarized as follows:

	Capitalized	Charge to Expense
Costs incident to drilling only	25	7
Costs incident to installation of well equipment	26	6
Costs incident to installation of well equipment	27	5

Of the companies that capitalize intangible development expense, only seven used depletion; the remainder used depreciation amortization. Twenty-three companies used the unit of production method while two used the straight line method.

The treatment of Intangible Development expense is summarized in Contemporary Accounting. (2)

"Some variation from general practice has been existant among oil companies. A choice seems to have been exercised as to the treatment of part of the cost of drilling oil

1. Bureau of Internal Revenue, Regulations 103, Section 19, 23 (m) 16 (1946).
2. Contemporary Accounting - American Institute of Accountants, Chapter 7, page 14.





wells. So called intangible costs, which include wages and other drilling expenses having no salvage value, have been charged against current income by some companies and capitalized by others. The entire cost of drilling unproductive wells has been capitalized or written off against income."

The conclusion reached by Andrus was that whether development costs are capitalized or not depends on whether the well is a producer or a dry hole. (1)

Furthermore, whether such costs are amortized or depleted is immaterial, since it is a mere matter of labeling. The significant fact is whether or not costs are matched against revenues.

#### Estimation of Units of Recoverable Oil

The unit depletion rate is determined by dividing the company's interest in the estimated recoverable oil from each property, including that recoverable from wells not yet drilled into the cost of the property. (2) The interest in the resource has the effect of excluding the owner's interest, i.e. the royalty.

The estimates of recoverable oil are made at least yearly (3) and thereby, the depletion rates may and often will vary each year.

1. Andrus - Depletion in the Oil Industry, Journal of Accountancy, Volume 62, page 104.
2. Higgins - Preferable Method for Recording Cost Depletion, New York Certified Public Accountant, Volume 10, page 407.
3. Ibid., page 407.





The recoverable oil reserve is usually 40% less than the total oil reserve. Even the best modern methods seldom permit the withdrawal of more than 60% of the oil content of a property. Accordingly, an estimate of recoverable oils is limited to that portion which can be extracted up to the point where the out-of-pocket costs of raising a barrel of oil to the surface equals the income from that barrel. (1)

In the petroleum industry, the accuracy with which recoverable reserves can be estimated varies widely in accordance with the nature of the underground reservoir, the stage of development, the drilling and production program and many other factors. (2)

#### Methods of Computing Depletion of a Petroleum Resource

The unit of production method, sometimes called the "barrel unit method," is the one most generally used in the oil industry today. Thirty-one of the thirty-two companies in Foraste's survey used this method. (3) No mention was made of the method used by the odd company. The unit depletion method may be applied to all properties as a unit or to each property separately. That is, determine a composite depletion rate for all properties by dividing the total property value by the total estimated company reserves and multiply

1. Foraste - Depletion in the Oil Industry, page 21.
2. Ibid., page 3.
3. Ibid., page 50.

COMPARISON OF DEPLETION METHODS  
IN THE PETROLEUM INDUSTRY (1)

Year	Net Production (bbl.)	Gross Income @ \$1.00 per bbl.	Lifting Cost	Straight Line Depletion		Unit of Production Depletion	
				Depletion Total Cost	Net Profit Expense (Net Loss)	Depletion Total Cost	Net Profit Expense (Net Loss)
1	47,650	47,650	5,000	3,000	8,000 39,650	14,295	19,295 28,335
2	17,500	17,500	4,000	3,000	7,000 10,500	5,250	9,250 8,250
3	10,000	10,000	3,500	3,000	6,500 3,500	3,000	6,500 3,500
4	6,000	6,000	3,100	3,000	6,100 (100)	1,800	4,900 1,100
5	4,250	4,250	3,000	3,000	6,000 (1,750)	1,275	4,295 (25)
6	3,600	3,600	2,750	3,000	5,750 (2,150)	1,080	3,830 (230)
7	3,100	3,100	2,600	3,000	5,600 (2,500)	930	3,530 (430)
8	2,800	2,800	2,550	3,000	5,550 (2,750)	840	3,390 (590)
9	2,600	2,600	2,550	3,000	5,550 (2,950)	780	3,330 (730)
10	2,500	2,500	2,550	3,000	5,550 (3,000)	750	3,250 (750)
	100,000	100,000	31,550	30,000	61,550 38,450	30,000	61,550 38,450

1. Foraste - Depletion in the Oil Industry, Appendix, Data for Hypothetical Cost Curve.

that rate by the total production to get the total depletion charge. On the other hand, consider each lease or property separately, and determine the depletion charge on the basis of an individual rate and individual production. The results of the aforementioned survey indicate that twenty-eight companies make a separate computation for each lease; one company groups all properties into a district and computes depletion for each district; two companies group all districts into a field and make a separate computation for each field; one company uses a composite rate for all its properties. (1) Thus, current practice recognizes an individual rate, a semi-composite rate and a composite rate. The reason for the preference for the individual rate is that each lease or property is the natural unit for allocating costs in a cost accounting system. (2)

The straight line basis of depletion was the method first used in the oil industry. A flat rate was applied to the cost with little or no relation to the production life of the properties. This "flat rate" could be based on an expected life or on an arbitrary life of the property. In any case, the depletion charge was fixed and did not vary with the amount of production.

The table on the opposite page compares the results of the two depletion methods. Assume the total cost to be

1. Ibid., page 50.
2. Ibid., page 21.







recovered through depletion is \$30,000 and the estimated recoverable oil is 100,000 barrels.

It is easy to see that the straight line method of depletion bears no relation whatever to production. The net results are the same because this hypothetical case was arranged that way, but it is easy to see that the straight line method overstates income during the first years of the property and understates the income over the remainder of the productive life. The unit of production method resulted in a recovery of the initial cost of \$30,000 proportionate to the recovery and sale of oil. As stated before under the unit of production method, the amount of oil reserves are determined at least yearly. Thus, under the conditions of the table, it is assumed that the property is a non-producer after the tenth year. If the property were fully exhausted at the end of seven years, under the straight line method, the write-off against income would be \$9,000 in addition to the periodic charge of \$3,000. If, however, the property were to last more than ten years, the opposite would be true. Thus, it is again stated that time does not measure depletion. Depletion can only be measured by physical exhaustion. The advantage of the unit of production method is that the depletion charge is distributed evenly over each barrel produced. Furthermore,



the periodic estimate of reserves and correction of the depletion rates does not allow errors to accumulate under this method.

Another method of depletion formerly used was the decline in flow method. (1) This method was based on the theory that production from an oil well is roughly indicative of the amount of oil it will ultimately produce (and therefore its value). The amount of capital consumed during the year was measured by the decline in the flow of oil. For example, if a property costs \$30,000 and produced 100 barrels of oil per day at the beginning of the year and declined to a rate of 90 barrels per day at the end of the year, the depletion rate was 10% and the depletion charge \$3,000. The decline in flow method resembles the rock pressure method used in computing depletion of natural gas resources.

Percentage depletion is a method of computing the allowance from income for purposes of the federal income tax. It is not used in the regular accounts of the oil producing companies.

The following cases illustrate the current practices of accounting for depletion in the petroleum industry.

1. Ibid., page 20.



Statement Presentation

## Case 34

## Green River Oil Company (1)

The problem of charging income with depletion on an appreciated valuation of oil properties is illustrated on the statement of this company. The condensed balance sheet as of December 31, 1936 follows:

## Assets

Current Assets:			\$1,500,000
Fixed Assets			
Producing Properties	\$700,000		
Reserve for Depletion	<u>227,500</u>	462,500	
Appreciation of Producing Properties	500,000		
Reserve for Depletion of Appreciated Properties	<u>162,500</u>	<u>337,500</u>	
			810,000
Other Fixed Assets	400,000		
Reserve Depreciation	<u>20,000</u>	<u>380,000</u>	
			1,190,000
Deferred Charges			200,000
Total Assets			<u><u>2,890,000</u></u>

## Liabilities and Capital

Current Liabilities			\$505,000
Net Worth			
Capital Stock		\$1,500,000	
Surplus			
Reserve for Appreciation of Producing Properties	\$337,500		
Earnings for 1946	\$385,000		
Realized Appreciation	<u>162,500</u>	<u>547,500</u>	<u>885,000</u>
Total Net Worth			<u>2,385,000</u>
Total Liabilities and Capital			<u><u>2,890,000</u></u>

1. Andrus - Accounting for Depletion of Oil Lands, Journal of Accountancy, Volume 62, page 113.





This company has charged income with both depletion on cost and depletion on appreciated value. The depletion on the appreciated value is then added back to earnings in the surplus account. The entry to bring appreciated values on the books can be done in three ways. Since the cost is \$700,000 and the "appraised" value is \$1,200,000, the appreciation is \$500,000.

#### Method I

Producing Properties	\$500,000	
Surplus from Appreciation		\$500,000

#### Method II

Appreciation of Producing Properties	\$500,000	
Reserve for Appreciation		\$500,000

#### Method III

Appreciation of Producing Properties	\$500,000	
Unrealized Surplus from Appreciation		\$500,000

To compare the effects of each of these methods, the following facts are given relative to the computation of the depletion charge. The estimated reserve amounts to ten million and the production for 1936 amounted to 650,000 barrels.

The depletion charge for 1936 is computed as follows:

$$\frac{\$1,200,000}{2 \text{ million barrels}} = 60¢ \text{ per barrel, depletion rate}$$

$$10¢ \times 650,000 \text{ barrels} = \$390,000 \text{ depletion charge for the year}$$

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF THE HISTORY OF ARTS  
AND ARCHITECTURE  
1155 EAST 58TH STREET  
CHICAGO, ILLINOIS 60637  
TEL: 773-936-5000  
FAX: 773-936-5001  
WWW.CHICAGO.HISTARTS.EDU

THE UNIVERSITY OF CHICAGO  
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Under Method I the entry would be:

Depletion of Producing Properties	\$390,000	
Reserve for Depletion		\$390,000

Under Method II and III, the depletion charge and the rate is analyzed as follows:

	<u>Cost</u>	<u>Appreciation</u>	<u>Total</u>
Value	\$700,000	\$500,000	\$1,200,000
Reserve	2 million barrels		
Rate per barrel	.35	.25	
Depletion charge	\$227,500	\$162,000	\$390,000

Under Method II the entry would be:

Depletion of Producing Properties	\$390,000	
Reserve for Depletion		\$227,500
Property Depletion		162,500
Reserve for Appreciation	162,500	
Surplus (available for Dividends)		162,500

Under Method III, the entries are as follows:

Depletion of Producing Properties	390,000	
Reserve for Depletion (cost)		227,500
Reserve for Depletion appreciation		162,500
Unrealized Surplus from Appreciation	162,500	
Surplus (available for Dividends)		162,500

Method III, the most widely used of appreciation procedures, has the following advantages:

- a) a truer picture on the balance sheet where the cost of a property is in no wise related to its value.
- b) the separation of cost and appraised values
- c) the nature of dividends declared is apparent to stockholders





The condensed income statement of this company for 1936 shows along with the preceeding balance sheet the full effect of Method III.

Sales of Oil		\$1,500,000
Value of Oil Sold		
Crude Oil stock 1/1/36	\$575,000	
Depletion		
650,000 barrels @ 35¢ (cost)	\$227,500	
650,000 barrels @ 25¢ (appr)	<u>162,500</u>	
Present value of oil taken		
from ground	390,000	
Value of oil available for sale	965,000	
Crude Oil Stock 12/31/36	<u>600,000</u>	
Value of oil sold		<u>365,000</u>
Expenses:		
Development expense	500,000	
Lease operating and lifting expense	100,000	
Other expense	<u>150,000</u>	<u>750,000</u>
Net Income		<u>385,000</u>

### Case 35

#### Big Four Oil and Gas Company (1)

This company, engaged in the production of oil, made errors in estimating the total recoverable reserves of oil for the purpose of computing depletion. The original estimates and the original rates as applied to three separate leases follows:

1. Board of Tax Appeals Reports, Volume 28, page 61 (1933).



Lease	Total Production to Date (in barrels)	Total Depletion Charged to Date	Book Value of Lease
E.J. Seed	1,028,061	\$626,593	\$74,965
L.M. Seed	252,419	128,111	5,565
S. Gillespie	369,809	200,259	19,431

As of the end of 1928 since it was realized that errors existed in the estimated oil reserves, steps were taken to correct the depletion rate as follows:

Lease	Book Value of the lease as of December 31, 1928	Estimated Reserves Corrected as of December 31, 1928 (in barrels)	New Deple- tion Rate per barrel
E.J. Seed	\$74,965	182,997	\$.409003
L.M. Seed	5,565	40,509	.16333
S. Gillespie	19,431	55,882	.34773

This company did not follow the practice of many oil producing companies of reestimating the oil reserves periodically--at least annually. However, the original estimates were not too incorrect, viewing the production for a period of fifteen years. The net increase in oil reserve estimates was 110,000 barrels.

#### Case 36

##### Phillips Petroleum Company (1)

The company's policy in regard to depletion and development cost is stated at length in its annual report to

1. Annual Report to Stockholders (1947).



stockholders.

"Reserves for depletion are provided for classes of fixed assets subject to this change. The policy of the company in this respect is designed to extinguish the cost of each lease, or other unit of property during the period of its useful life. As a basis for computing depletion charges, engineering estimates are made of recoverable reserves. These estimates are revised periodically, based on actual experience, and changes are made which increase or decrease.

"It is the policy of the company to capitalize the intangible development costs of production oil and gas wells and extinguish such costs over the life of each property on a unit of production basis. Costs of dry holes drilled in U.S. are charged against income when completed.

"At December 31, 1947 the company was drilling a number of exploratory wells, some of which may be dry holes for which a special provision of \$849,000 was charged against 1947 income and included in the reserve for depletion."

### Case 37

#### Woodley Petroleum Company (1)

According to a statement in the Annual Report to the Securities and Exchange Commission, depletion is computed on a unit of production method as follows:

1. Divide the cost of a given lease, plus the intangible development costs pertaining to such lease, by the proven reserves estimated under the lease and then multiplying the result by the production of such lease.

1. Annual Report filed with the Securities and Exchange Commission for 1947.





Depletion of "other producing royalties" and minerals is provided on a basis of percentage of income.

An unusual reserve (in addition to depletion and depreciation) is deducted from the cost of property. It is called Reserve for Doubtful Minerals and Royalties \$50,000. Although the current year's income was charged with \$25,000 for this reserve, no explanation accompanied the balance sheet to explain its purpose. One could assume, however, that this company charges current income with a proportionate cost of wells which will prove dry. Two unconsolidated subsidiaries, Baird Refining Company and Octave Oil Refining Company follow the same policy.

#### Case 38

##### Wichita River Oil Corporation (1)

Depletion of producing leaseholds, including development costs, is computed by the unit of production method on the basis of cost of the leaseholds plus subsequent expenditures and the estimated volume of recoverable oil or gas. The undepleted portion of development costs with respect to wells abandoned has not been written off, such costs being maintained only by leases and not by wells. The company's

1. Annual Report filed with the Securities and Exchange Commission (1940).



practice is to continue to extinguish such costs through depletion based on the production from other wells on the leases.

Depletion accrued on leases disposed of has been removed from the reserve account at the time of such disposition.

The company makes no provision for amortization of non-producing leaseholds, which are written off upon expiration or surrender.

Intangible drilling and development costs have been capitalized and are included in the balance sheet under the caption "Producing Leaseholds and Uncompleted Well."

Schedule V lists the properties as follows:

Producing Leaseholds			
Leases and Royalty Interests		\$379,041	
Development Costs - subsequent to acquisition		<u>913,301</u>	
		1,292,342	
Less Reserve for Depletion			
Balance 1/1/47	\$734,567		
Charged to Profit and Loss	<u>56,883</u>		
Balance		<u>791,450</u>	\$500,892
Uncompleted Wells			
			1,146
Non-Producing Leaseholds and Royalty Interests			<u>97,105</u>
Total			<u><u>599,143</u></u>

In the Income Statement, gross income before provision for depletion and depreciation is shown. Unlike the Green River Oil Company, the "non-out of pocket" costs of





depletion and depreciation are excluded from the cost of production and possibly excluded in inventory valuation.

#### Case 39

##### Union Oil Company of California (1)

A note to the balance sheet explains that the properties are stated at cost, including since 1930 intangible drilling costs, except for a minor portion of oil lands stated on a March 1, 1913 value.

A schedule shows the book value of these properties as follows:

	Properties	Reserves
Oil Lands, Rights and Leases	\$73,171,213	\$46,269,194
Oil Wells and Facilities	152,141,053	84,408,882

The company computes its depletion on a unit of production method at rates based on estimates of the productive life of the property, which estimates are revised periodically.

#### Case 40

##### Texas Company (2)

This company's policy in regard to development costs is stated in the Annual Report to Stockholders as:

1. Annual Report to Stockholders (1947).
2. Annual Report to Stockholders (1947).



- "1. Capitalizing intangible development costs applicable to producing wells;
2. amortizing such costs at the rate of 8% per annum except to wells located in Illinois, Indiana, and Kentucky which are fully amortized as incurred;
3. charging to operating costs, upon abandonment of wells, the balance of intangible development costs applicable thereto and previously capitalized;
4. charging to operating costs the development costs applicable to dry holes."

#### Case 41

##### Pure Oil Company (1)

The company's properties were valued to reflect the fair value as determined by an appraisal of the company officers as of April 1, 1932. Subsequent additions are at cost.

Since 1934, the company has provided for depletion by applying to the total barrels produced an overall rate per barrel. This composite or overall rate was determined by dividing the total amount of producing properties by the net oil reserves estimated by the company's engineers. This company is one of the few that does not deplete each lease individually. This method is sometimes used in the coal industry. (2)

1. Annual Report to Stockholders (1947).
2. See supra page 100, Philadelphia and Reading Coal and Iron Company.



## Case 42

## Tide Water Associated Oil Company (1)

In a supplementary schedule to their balance sheet, this company shows the valuation of its properties as:

	Gross	Reserve for Depletion & Amort.	Net
Developed Properties	\$233,622,166	\$145,898,104	\$87,764,062
Undeveloped Properties	10,773,769	3,142,788	7,630,981

The gross book figures represents cost measured by cash, bonds, capital stock, or investments given in exchange.

## Case 43

## Bay Petroleum Corporation (2)

In filing federal and state income tax returns, intangible drilling and development costs have been deducted in determining taxable income, in accordance with the company's established practice and as permitted by the tax authorities. However, such costs are capitalized in the accounts.

1. Annual Report to Stockholders (1947).
2. Accounting Survey of 525 Accounting Reports, American Institute of Accountants (1948).





## Case 44

## Standard Oil Company of California (1)

This company states an usual depletion policy in an application for listing additional shares on the New York Stock Exchange in 1930. Depletion on all oil producing properties is calculated on the per barrel method. The value of the land and leasehold is divided by the estimated barrels of oil reserves and the figure resulting is the depletion rate per barrel. Thus, the actual production in barrels for a given year multiplied by such rates gives the total amount of depletion for the year. The values on which depletion is calculated are those approved by the directors at the organization of the company in 1926, with subsequent additions carried at cost.

1. Peloubet - Natural Resource Assets, Harvard Business Review, Volume 16, page 84.



## Chapter VI

### TIMBER RESOURCES

Timber resources have been classified as wasting assets. Timber, by its very nature, does not fit the definition of a wasting asset because not only is it capable of being replaced, but also the number of recoverable units increases each year through natural growth. This is a far different situation from the mineral or petroleum resource where once those resources have been exploited, there is nothing that will replace the amount removed. Paton explains in the Accountants' Handbook that: (1)

"Strictly speaking, timber can be replaced but in America there has thus far been comparatively little effort to produce lumber from a given tract continuously; usually the first cutting is the last at least as far as the efforts of the original enterprise are concerned."

In the earlier years of this country's development, the forests were leveled off at such a rate and in such a manner that replacement was impossible. Under these circumstances, depletion of the resource is desirable. However, the policy today is not one of ruthless and total exploitation of a timber resource but rather one of selective cutting of mature trees. (2) Under the circumstances, depletion of the resource by a charge against income is not desirable because there has been no decrease in the physical content

1. Page 618.

2. See infra page 142, Crown Zellerback Corporation.

REPORT OF THE

COMMISSIONERS OF THE LAND OFFICE

FOR THE YEAR 1870

IN RESPONSE TO A RESOLUTION OF THE HOUSE OF REPRESENTATIVES

PASSED MAY 15, 1869

AND BY THE SENATE

PASSED MAY 15, 1869

AND BY THE HOUSE OF REPRESENTATIVES

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of the resource. Thus, the cutting of timber has changed from a "mine" concept to that of a "crop" concept. Which concept should be applied to the book of account depends on the intent of the owner. Under the "mine" concept, the timber tract will, through exploitation, "waste" away to nothing, after which time the land would probably be disposed of at its "scrap" value; under the crop concept, the amount of timber available at the end of a year's cutting would be the same or a greater amount than that which was available at the beginning of the year. The intent of the owner or lessee will determine which concept should apply.

Timber is certainly the most peculiar of the wasting assets. Peculiar in that it may or may not be depleted, depending upon the intent of the owner; peculiar in that the asset may undergo accretion in value due to natural growth; and finally, peculiar in that if it is the intention to deplete a timber tract, the estimate of recoverable units is far more accurate than in the other wasting asset industries whose recoverable units are totally obscured from view.

#### Valuation of a Timber Resource

Timber can be acquired in three ways--by purchase of timber land in fee, by purchase of timber rights only, or by purchase of cut logs. Depletion is only concerned with the purchase of timberland or purchase of timber rights or



leases. The cost of the timberland or the lease is clearly a capital expenditure. In some instances, the residual value of the land should be deducted from total cost in order to assign a value to the standing timber. But, should the development costs or so called "carrying charges" be capitalized? Under the mine concept, carrying charges to the date when operations begin should be capitalized; and in addition, those carrying costs incurred which pertain to timber that will be cut at some future date should be capitalized. These costs will be recovered through depletion charges to income measured by the amount of timber cut. Under the "crop concept," sometimes called the permanent yield basis, these carrying charges should only be capitalized up to the date that production begins. If that period is less than a year, then the past outlay for carrying charges as well as future outlays should be charged to expense as incurred, because costs are being matched against revenues from the harvesting of timber by selective cutting on the tract taken as a whole.

Carrying charges in timber exploitation are, in a manner of speaking, similar to development expense of a mine. Cutting underbrush and building roads which facilitate the production of timber can be compared to the preparations necessary to extract ore. Yet, there are many development costs which are anomalous to the timber industry. The cost





of protecting the timber against destruction from insects and disease has no counterpart in other wasting asset industries. In general, carrying charges include insurance, taxes, patrolling, inspecting, and some administrative expense.

Carrying charges, as stated previously, may be capitalized by a charge either to the timberlands account or to a deferred charge account; or carrying charges may be charged directly to current income as an expense. A conclusion was drawn by Rowbury as to the application of accounting theory to the treatment of carrying charges. (1) If the timber was to be considered "a fixed body of raw material," then the carrying charges of taxes and protection should be charged off as current expenses. But, if on the other hand, the timber was to be considered as a body of continuously producing raw material, then the carrying charges on the growing timber should be capitalized, until the next cutting period. In other words, treat the carrying charges as deferred expenses for the period between cutting. That is, if a crop is harvested from the timber every fifth year, then the carrying charges for the proceeding four years should be deferred until the fifth year and matched against the revenue from the crop.

1. Rowbury - Timber "Depletion," Accounting Review, Volume 22, page 187 (1947).





However, it was pointed out (1) that deferring these expenses, while good from the point of view of accounting procedure, is disadvantageous from the point of view of federal income taxes. Under the present tax regulations, carrying charges may be capitalized or deducted as a current expense. Rowbury gives a brief description of the disadvantage of capitalizing carrying charges under the provisions of the federal income tax law. (2)

"Since most corporations are presently taxed at a 38% rate, it follows that by deduction carrying charges as current expense the net profit can be increased by 38% of the amount of the deduction. On the other hand, if the charges are capitalized, they can be treated as expenses in the future when the timber is cut. The cutting of timber may be classed as the sale or exchange of a capital asset; thus, a future deduction will increase income by on 25% of the amount of the deduction. In addition to the necessity of deferring part of our net income after taxes, we would be effecting deduction at a 25% rate in the future as opposed to a 38% rate at the present."

Paton pointed out in his monograph that carrying charges should not be capitalized where the timberland is not in use and no program or intent exists to place it in operation at some future time. (3)

Another phase of the problem of valuing a timber resource is that of accretion. Should the increase in the value of a timber resource as the result of natural growth

1. Ibid., page 190.
2. Ibid., page 190.
3. Paton and Littleton - Introduction to Corporate Accounting Standards. American Accounting Association (1940) page 90.



be recorded in the accounts? Good accounting procedure would require that the increase in value be ignored and that the value of the timber resource be reflected in the accounts at cost. Accounting theory has usually discouraged the concept of recording the appreciation of an asset in the accounts and in the published statements.

However, there is a difference between appreciation and accretion. Appreciation means the increase in the value of the asset without an increase in the asset in the physical sense. In other words, appreciation is the increase in value due to external factors. Accretion, on the other hand, is the increase in the value of an asset as a result of the physical increase in the asset, an internal factor.

"Accretion does give rise to definite concrete assets that one could stub his toe on." (1)

In recognizing accretion, Paton states: (2)

"There is no serious objection to the reporting of careful estimates of accretion provided that the addition to assets is handled in such a manner as not to obscure recorded costs and that the resulting credit is clearly labeled and excluded from realized income."

If accretion is to be recognized, it should be recorded by charging a separate asset account, Timber Accretion and by crediting an (unearned) surplus account, Reserve

1. Rowbury - Timber Depletion, Accounting Review, Volume 22, page 190 (1947).
2. Paton and Littleton - Introduction to Corporate Accounting Standards, American Accounting Association (1940) page 52.





for Accretion. Growth would then be reflected in the accounts at "the current market value for a going concern." (1) As a matter of accounting practice, the problem of accretion is generally ignored, since any accretion is offset by losses due to disease and the elimination of malformed trees.

#### Computation of the Depletion Charge

If the depletion charge is to be computed, the unit of production method is generally used. That is, an estimate of the number of unit of recoverable timber is determined by a cruise and a depletion rate is secured by dividing this estimate into the cost of the property plus any development costs less the value of the land without the timber. This rate multiplied by the annual production will give the depletion charge for the year. If timber is cut on a mine basis, this unit method of depletion obtains the desired results. But, if the timber is harvested on a crop basis, the ridiculousness of such a depletion charge is illustrated in the following situation.

Assume that the cost of a tract of timber is \$50,000, that the development cost the first year is \$3,000 and that the residual value of the land is \$5,000. Cutting begins at the end of the first year. The estimated recoverable units before cutting commences amount to 12,000 thousand board feet.

1. Rowbury - Timber Depletion, Accounting Review, Volume 22, page 190 (1947).

COMPARISON OF TWO METHODS OF  
COMPUTING COST OF PRODUCTION OF TIMBER

Year	Production (in M board feet)	Cost of Standing Timber	Accumulated Depletion	Development and Carrying Charges	Depletion Recognized	Depletion Charge	Total Expense	Depletion Ignored	Total Expense
1	--	48,000	--	3,000	--	--	--	--	--
2	1,000		4,000	1,000	4,000	5,000	1,000		1,000
3	2,000		12,000	1,000	8,000	9,000	1,000		1,000
4	3,000		24,000	1,000	12,000	13,000	1,000		1,000
5	2,000		32,000	1,000	8,000	9,000	1,000		1,000
6	2,000		40,000	1,000	8,000	9,000	1,000		1,000
7	2,000		48,000	1,000	8,000	9,000	1,000		1,000
8	2,000		--	1,000	--	1,000	1,000		1,000
9	2,000		--	1,000	--	1,000	1,000		1,000
10	2,000		--	1,000	--	1,000	1,000		1,000

The cost of the resource to be depleted is \$48,000.  
 The depletion rate is \$4.00 per thousand board feet.  
 (\$48,000 ÷ 12,000)

Assume further that the timber is harvested by selective cutting and that the amount of recoverable timber at the end of the tenth year is the same as of the commencement of operations. The production and depletion charges for the ten-year period are tabulated on the opposite page.

At the end of the seventh year, the timber resource is fully depleted under one method yet under the assumption stated above the quantity of recoverable timber is the same at the end of the year as it was at the beginning. The amount of timber cut was offset by the growth of the standing timber in the tract.

It is obvious that under the crop concept, depletion should not be recognized because the resource is just as great at the end of a period of cutting as it was at the start of the period. Clearly, the results obtained under the column labeled depletion would present the truer picture. The book balance of the asset is carried at the original cost figure at the end of the tenth year.

The following cases indicate the current practice of accounting for the depletion of timber.





## Case 45

West Virginia Pulp and Paper Company (1)

In describing its depletion policy, the company states:

"The provision for depletion is determined by applying to the quantity of timber removed during the year rates per thousand feet based upon the book value of the timber divided by the estimated standing timber."

Neither in its report to the Securities and Exchange Commission nor in its published reports to stockholders does the company state whether or not the timber resources are on a permanent yield basis. The book values of the timber account may be meaningless if the timber resource is in its third, fourth or fifth cutting cycle.

The "meaningless book values" are pointed out by Rowbury in his recent article. (2)

"At the beginning of 1945, the West Virginia Pulp and Paper Company carried its timberlands (about 350,000 acres) at a book value of \$4,442,887. In the same year, the company sold part of the timber from 49,773 acres, or about one-sixth of the total, for \$5,950,965, an amount in excess of the total book value of all their timberland. In 1945 the company credited the net profit from the transaction \$3,532,788 directly to surplus. This figure, a clearcut adjustment of former income, could hardly be classed as immaterial. The report net income of the company for 1945 was \$2,142,072."

1. Annual Report to the Securities and Exchange Commission for the year ending October 31, 1939.
2. Rowbury - Timber "Depletion", Accounting Review, Volume 22, page 189 (April 1947).





## Case 46

## Warner Mountains Lumber Company (1)

In 1923 the company executed an option to purchase timberland consisting of 25,000 acres at a total cost of \$800,000, payable in installments, with interest accruing on the unpaid balance, the last installment due in February 1930.

During the period, the company paid the following expenses which were charged to the Timber Account.

Interest	\$4,273.91
Cost of Timber Cruise	17,063.18
Local Taxes	26,837.36
Cost of Fire Protection	4,622.13
Telephone, Telegraph, Stationery	512.02
Attorney's fee for examining title	500.00
Attorney's fee for organizing Corp.	3,000.00
Attorney's fee for collection of trespass damage	151.43
Attorney's fee unknown	987.64
Accounting fees	850.00
Expenses of unsuccessful effort to sell property	20,001.69

The receipts during the period were credited to the Timber Account.

Grazing fees	\$14,501.84
Interest	474.64
Damage for trespass	2,281.43

The company never cut or sold any timber from this property during the period 1923 - 1946.

1. Adapted from case in Tax Court Reports, Volume 9, page 1171, (1947).



The value of the depletable timber should be computed as follows:

Cost of Timberlands	\$800,000.00
Interest on Installments	4,273.91
Cost of Timber Cruises	17,063.18
Local Taxes	26,837.36
Cost of Fire Protection	4,622.13
Attorney's fees for examining title	500.00
	<hr/> 853,296.58

The expenses of the unsuccessful attempt to sell the timber, the incidental administrative expense, the expenses of incorporation, trespass damage expenses and accounting fees should not be charged to the timber account.

Neither should grazing fees, interest income nor trespass damages be credited to the account.

The timber account is correctly valued at cost in the amount of \$853,296.58. The depletion charge should be based on this cost.

#### Case 47

##### International Paper Company (1)

In its balance sheet of December 31, 1946, the company carries its woodlands at a book value of \$9,884,885.74. Depletion charged to income is credited directly to the woodland account. In a footnote to the balance sheet, the company

1. Application filed with Department of Stock List, New York Stock Exchange (File #A-12402, May 28, 1946).





explains that depletion charges over many years has reduced the book values of some holdings to a nominal value. The woodlands are stated at cost less the accumulated depletion charges.

As of December 31, 1945 the company engineers estimated the available timber at 60,495,700 "pulpwood cords." For the purposes of unit depletion, estimates of the amount of recoverable timber by areas expressed in pulpwood cords are prepared periodically. These areas include New England, New York, Southern United States and Canada.

Depletion is not considered a cost of production. It is interesting to note that depletion which is applicable to the inventories is stated separately under the caption Deferred Assets and Expense.

The company does not state why they do not consider depletion as a cost of production. In this respect, the situation is very similar to many of the metal mining companies where depletion, if recognized at all, is seldom presented as a cost of production.



## Case 48

## Crown Zellerbak Corporation (1)

This company depletes its timber resources on a unit basis. Depletion of timberlands is based generally upon the book values of specific tracts and the latest cruise thereof.

During the period 1943 - 1945, the company applied a "selective depletion" charge to income in connection with special airplane spruce operations. This selective depletion charge was a special rate allowed by the tax authorities for war production.

Depletion is considered part of the cost of goods sold, but in the published reports depletion is shown separately in the income statement.

In order to assume a supply of timber on a sustained yield basis for future operations, the company acquired substantial quantities of timber during 1943 - 4. However, the company is attempting, according to the Annual Report to the Stockholders to place all timber resources on a permanent yield basis. Some of the timber tracts are referred to as "tree farms" which would indicate a contemplated, if not current, crop basis.

When this company succeeds in placing its timber resources on a permanent yield basis, there should be no

1. Annual Report to Stockholders (1948). Prospectus filed with Securities and Exchange Commission with amendments, September 1945, File #2-5898.



further depletion charges. In fact, if any separate tracts or areas could now be considered permanent yield, there should be no recognition of depletion for the current production from that tract or area.





## CONCLUSION

From the preceeding chapters it may be concluded that depletion is generally recognized in the major natural resource industries with the notable exception of non-ferrous metal mining. It seems improbable that depletion will ever be uniformly recognized in this latter industry because of the physical impossibility, in some cases, of making a reasonably accurate estimate of the total recoverable ore content. It is possible under certain conditions to condone the absence of a uniform recognition of depletion in this industry by applying the crop concept to mining operations. The conditions necessary for the application of this concept are:

1. that the resource is expected to produce profitably for an indefinite period in the future
2. that the total recoverable content of the resource is incapable of being measured
3. that the resource is prepared for exploitation by currently developing as much ore for the following period of operations as was removed during the present period.

It may also be concluded from the preceeding chapters that the basis of valuation of wasting assets is not uniform among the firms in the natural resource industries. Some firms use cost as a basis of valuing wasting assets, cost measured by either cash or par value capital stock; others use a valuation which represents market value as of a certain date, discovery value as of a certain date or some arbitrary value decided upon by a vote of the board of directors. The



result of these various basis of valuations cause depletion charges which are incapable of being compared from firm to firm within an industry.

The unit of production method of computing the depletion charge is generally used in all the natural resource industries. Yet, there are variations to this method, since some firms apply an individual rate to the production from each mine while others apply an overall rate to total production, regardless of the source. A depletion charge based on a certain percentage of income, while recognized for income tax purposes is seldom found incorporated in the books of account.

Statement presentation of depletion, can be, and should be more uniform. There is no standard procedure for presenting depletion as an expense in the income statements. Some firms show depletion as a deduction from "net income before depletion," while others show depletion along with other operating expenses as a deduction from gross income. Depletion is clearly a cost of production and should be disclosed as such in the statement. A very few firms do show depletion as a cost of production in their published reports. Because of the current trend toward better accounting statements, it seems reasonable to expect that this trend will overcome the traditions of statement presentation extant in





some of the natural resource industries and that depletion will be shown as part of the cost of production. Another area ripe for change is the practice of by-passing the income statement entirely and charging depletion directly to surplus, a practice followed by a few firms. This practice can be gradually expected to cease as attention is focused more and more on the income statement.

The influence of the federal income tax laws on practice of recognizing depletion should not be underestimated. Prior to the passage of the income tax laws depletion, if recognized at all, was generally used to vary the net income of the period in accordance with the wishes of the directors or the management of the corporation. With the advent of the income tax law, depletion became recognized, at least for tax purposes as a deduction from income. As time went on the methods of computing depletion as well as the basis for valuing the natural resource asset were written into the law. As a result many firms began to record depletion charges in their books of account on a consistent basis and also began to present depletion in their financial statements.

The effect of the Securities and Exchange Act of 1934 on the practice of accounting for depletion has been small compared to the effect of the income tax law. The Securities and Exchange Commission does not require that de-



pletion be recognized. If disclosure is made that depletion is not recognized, that disclosure is sufficient. The requirements of the New York Stock Exchange, similar to those of the Securities and Exchange Commission, have given no impetus to making the recognition of and the practice of accounting for depletion more uniform.

In general, it may be stated that the rank and file of companies in the natural resource industries conform with accepted accounting theory and practice in accounting for depletion. One resource industry, non-ferrous metal mining, does not follow accepted theory for reasons previously stated. These deviational cases in which depletion is either ignored or else charged directly to surplus are highlighted by some very large firms with a national reputation. The extent of the homogeneity of accounting for depletion is beclouded by the "spectacular" practices of accounting for depletion by few of these firms.



## APPENDICES







Analysis of Twenty-two Published Annual  
Reports of Non-Ferrous Mining Companies for 1947

	Name of Company	Basis of Valuation of Mineral Resources	Depletion Re
1	Alaska Juneau Gold Mining Company	Not stated	Yes
2	Anaconda Copper Mining Company	Cost as measured by cash or par value stock	No
3	Bunker Hill & Sullivan Mining and Concentrating Company	Cost plus appreciation	No
4	Calumet and Hecla Consolidated Copper Co.	"depletable values allowed by the U.S. Treasury"	None
5	Climax Molybdenum	Cost plus discovery increment	Yes
6	Copper Range Company*	Valued by directors as of December 31, 1931. Additions at cost	None
7	Callahan Zinc & Lead Company	Cost	None
8	Federal Mining and Smelting	See infra page 80; beginning January 1, 1948	
9	Greene Cavanaugh Copper Company	Cost measured either in cash or par value stock of parent company	No
10	Homestake Mining Co.	1913 values; additions at cost	Yes
11	Inspiration Consolidated Copper Company	Cost, measured by par value stock and cash	None
12	Isle Royale Copper Company	Value not stated; addition at cost	Yes
13	Kennecott Copper Corporation	"accounting basis" see infra page 56	None
14	Magma Copper Company	Does not state	Yes

\* 1946 Statement

Development Cost	Depletion as Cost of Production	Remarks
Separate Account under fixed assets	No production in 1947	In 1944 depletion on cost charged to income; depletion on appraised increment charged to surplus
Deferred charge	No	No depletion on metal resources. Depletes timber and phosphate resources.
Separate item under fixed assets	No	Unit depletion cost to income appreciation to surplus
Other assets	No	Depletion is included in inven- tory valuation though not shown as a cost of production in the statement
In property account	No	Does not state method used; unit implied
In property account	No	Does not deplete resource
Deferred Charge	No	Unit method
This company will deplete its resource on a unit basis by a direct charge to surplus.		
In property account	No	Does not deplete resource
In property account	No	Percentage Depletion
In property account	No	Does not deplete resource
In property account	No	Unit method
Deferred charge	No	Does not deplete resource
Deferred charge	Yes	Unit method, gives ore reserves in report







	Name of Company	Basis of Valuation of Mineral Resources	Depletion Res
15	North Butte Mining Company	1913 value	None
16	National Lead Company	Appraised value as of 1915; additions at cost	Yes
17	Park Utah Consolidated Mines Company	Does not state	No
18	Phelps-Dodge Corporation	1913 values based on engineers' estimate; additions at cost (see infra page 70)	Yes
19	Quincy Mining Company	Same as predecessor with adjustments for par value of stock	Yes
20	St. Joseph's Lead Company	Cost (see infra page 67)	
21	Shaltuch Denn Mining Corporation	Valued at par value of capital stock in 1925; additions at cost	Yes
22	Tennessee Corporation	Does not state	No

Source: Annual reports to stockholders as published by respective companies as at December 31, 1947.

Development Cost	Depletion as Cost of Production	Remarks
Deferred charge	No	No depletion taken 1942-47 -- don't have information to com- pute it
In property account	No	Method not stated; probably unit
In property account	No	Does not deplete
In property account	No	Unit depletion charged to surplus
In property account	No	Unit method of depletion
In property account	No	Unit method of depletion
In property account	No	Unit method
In property account	No	Does not deplete resource



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# Congress of the United States

## JOINT COMMITTEE ON INTERNAL REVENUE TAXATION

Washington

March 18, 1949

Mr. R. W. Gray  
163 Commonwealth Avenue  
Boston, Massachusetts

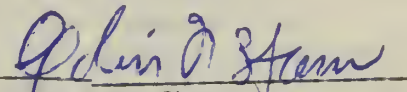
Dear Mr. Gray:

The Committee is not considering changes in tax legislation at this time and it will probably be sometime later before it determines what, if any, proposals concerning tax legislation should be adopted.

The technical staffs of the Joint Committee on Internal Revenue Taxation and of the Treasury Department are engaged in research studies looking toward the preparation of suggestions for the Committee when tax legislation is considered.

The matter of percentage depletion has not been gone into but this subject may be later studied.

Sincerely yours,

  
Colin F. Stam  
Chief of Staff





# NEW YORK STOCK EXCHANGE

ELEVEN WALL STREET

NEW YORK 5, N. Y.

DEPARTMENT OF STOCK LIST

PHILLIP L. WEST

DIRECTOR

JOHN E. GRAY

ASSISTANT DIRECTOR

LOUIS J. HASSELBACH

ASSISTANT DIRECTOR

March 1, 1949

Mr. R. W. Gray  
163 Commonwealth Ave.  
Boston, Mass.

Dear Mr. Gray:

Thank you for your recent letter requesting information with respect to depletion policies of listed companies having wasting assets.

Our only requirement with respect to this question is that in the listing application companies disclose the basis on which depletion is charged and the theory underlying such basis where the assets subject to depletion are material. Further, we ask that listed companies with depletable assets show in their annual reports to stockholders:

- (a) an indication as to whether or not an annual charge for depletion is made; and
- (b) an indication as to whether a depletion reserve is accumulated or the annual charge applied directly against the related asset.

We have not compiled the information sought in the second paragraph of your letter with respect to the depletion practices followed by listed companies in the several industries which you listed. Since there are almost 100 listed companies which are represented in these various groups, the time which would be consumed in analyzing the statements of each of these companies would be considerable. We do not know where you might be able to obtain information of this nature, but you are invited to use the material such as listing applications and annual reports to stockholders, filed with us by listed companies in compiling the data you seek. Also, as you are probably

# THE HISTORY OF THE CITY OF BOSTON

By  
JOSEPH NEALE

Vol. I.  
1793

THE HISTORY OF THE CITY OF BOSTON, FROM THE FIRST SETTLEMENT TO THE PRESENT TIME.

IN THREE VOLUMES. BY JOSEPH NEALE, ESQ. OF THE BARR.

LONDON: Printed by J. NEALE, at the Theatre Royal, in Pall Mall, 1793.

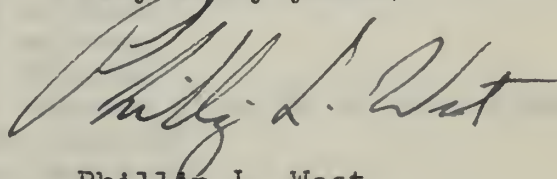
THE HISTORY OF THE CITY OF BOSTON, FROM THE FIRST SETTLEMENT TO THE PRESENT TIME.

Mr. R. W. Gray - 2

aware, considerable financial information for listed companies is contained in statistical manuals such as Moody's or Standard and Poor's, copies of which should be available at your local library, bank, or office of a member firm registered on a national securities exchange.

If you have any further question on this subject please advise.

Very truly yours,

A handwritten signature in cursive script, reading "Phillip L. West". The signature is written in dark ink and is positioned above the printed name and title.

Phillip L. West  
Director

WRS:AMM





Summary of  
State Property and Income Taxation of Metallic Deposits (1)

State Property Tax

<u>State</u>	<u>Basis of Property Tax</u>
Alabama	ad valorem
Arizona	ad valorem
California	ad valorem
Colorado	net proceeds
Idaho	net proceeds plus 3% of net profit
Kansas	ad valorem
Missouri	ad valorem
Michigan	ad valorem
Minnesota	ad valorem plus 6% of net income
Montana	net proceeds
Nevada	net proceeds
New Mexico	ad valorem
Oklahoma	gross proceeds: 3/4 % of gross production
South Dakota	6% of value of gold content less flat exemption of \$100,000
Utah	Twice the net proceeds plus 1% of gross receipts

State Income Tax

<u>State</u>	<u>Depletion Allowance</u>
California	percentage depletion
Idaho	percentage depletion
Kansas	unit depletion, in some areas percentage depletion
Minnesota	unit depletion
Montana	same as federal income tax law
New Mexico	optional: unit or percentage
South Dakota	same as federal income tax
Utah	optional: unit or percentage
Wisconsin	unit depletion

1. Roberts - State Taxation of Metallic Deposits, Harvard University Press (1944).



Selected Questions and Answers  
Contained in a Questionnaire Submitted to the  
Petroleum Industry (1)

Paul Foraste submitted a confidential questionnaire to one hundred large, medium and small oil companies in 1942-3. Replies were received from thirty-two unnamed companies.

Some questions and tabulated replies selected from this questionnaire follow:

Question 13

Does the depletion base represent actual cost or a revaluation?

Tabulation:	Companies
Actual cost	25
Revaluation higher than cost	3
Revaluation lower than cost	4

Question 15

In what connection was the revaluation made?

Tabulation:	Companies
Revaluation as of March 1, 1913	1
Reorganization	3
Other	3

Question 16

Is the excess over cost written off currently?

Tabulation:	Companies
Yes	3
Dis not answer	1

(Two companies charge depletion and one charges amortization expense)

1. Adapted from Foraste - Depletion in the Oil Industry Appendix - Questionnaire.



## Question 19

Are development costs (as classified)  
capitalized or charged to expense?

Tabulation:	Capital (companies)	Expense (companies)
Costs incident to drilling only	25	7
Costs incident to in- stallation of well equipment	26	6
Costs incident to in- stallation of lease equipment	27	5

These costs are amortized by a charge to:

Depletion	7 companies
Depreciation	18 companies

The method used to amortize these costs:

Straight Line	2 companies
Unit of Production	23 companies

All thirty-two companies recorded depletion of cost of developed acreage on their books. Thirty-one of these companies used the unit of production method.





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1871

Received of the Hon. the Secy. of the Navy  
the sum of \$1000.00 for the purchase of  
the sum of \$1000.00 for the purchase of  
the sum of \$1000.00 for the purchase of

1872

Received of the Hon. the Secy. of the Navy  
the sum of \$1000.00 for the purchase of  
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the sum of \$1000.00 for the purchase of  
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